The Builder.

No. CVII.

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THE recent investigations of circumstances affecting the health of the masses, have caused the importance of pure air and light to be more generally understood now than it was before. The simple fact set forth by Dr. Arnott long ago, that a canary bird suspended near the top of a curtained bedstead in which people are sleeping will generally be found dead in the morning, should have been sufficient to shew the danger of breathing a vitiated medium, and the necessity for providing a constant and ample supply of fresh air in our dwellings.

Impure air, however, cannot be seen,—its effects are not immediate,— and so it has been allowed quietly to kill its thousands annually, and to lay the seeds of disease in other thousands ready to be developed by assisting circumstances, without an effort to stay its ravages, and almost without a knowledge of its agency.

A healthy man respires about twenty times in a minute, and inhales in that period about 700 cubic inches of air. Fresh air contains rather more than twenty-three per cent. of oxygen, and about one and a half per cent. of carbonic acid: by the process of respiration the oxygen is reduced, in round numbers, to eleven per cent., and the carbonic acid is increased to rather more than eight per cent. Now, three and a half per cent. of this gas render air unfit to support life; so that a man in respiring 700 cubic inches in a minute, *vitiates* about 1630 cubic inches (to say nothing of the effect produced by the exhalation from the skin); and this will serve to give some notion of the large quantity of air required for the healthful occupation of a building by a number of persons.

All this, however, was for long unthought of, as we have already said, but the concurring evidence of scientific investigators and able medical men, shewing the effect of imperfect ventilation, especially in producing consumptive diseases, fever, and scrofula, repeated in all shapes by the press, has at last made the public aware of its destructive effects, and anxious to prevent them. The great interest in the subject which has been awakened is exhibiting itself, amongst other ways, in a widely-spread agitation against the window-tax. Meetings have been held, not merely in several of the metropolitan parishes, but in the provincial towns; a deputation of delegates had an interview with Sir Robert Peel, ineffectually; the matter has been broached in the House of Commons, and petitions are to be forwarded to aid in obtaining the removal of this obnoxious impost.

All are unanimous in terming it a tax on cleanliness, a tax on ventilation, a TAX ON HEALTH.

"A window-tax is an injustice," says one, "and of the grossest kind, to all classes and conditions of men. We may be told that houses under seven windows being exempted, the tax does not fall upon the poor; but if we consider how many of this class live crowded in large lodging-houses, and how many families occupy, for economy's sake, the same domicile, we find that only a fraction of the poor are freed from the weight of this impost. Besides we urge upon higher grounds, that the free light and air of heaven have no right to be supplied in limitation to mankind. God gave them abundantly to satisfy the necessities of his creatures, and no man has a right to rob his fellow-man of their full service. It has been proved by the statistics of public health, that the maladies and mortality of the poor are mainly owing to want of pure air. Is it not, we ask, the most flagrant tyranny to limit a man to a domicile lighted and ventilated by only seven windows, and to tell him, if he knocks out a few extra bricks that he may breathe more freely, he must pay for his privileges? Can any greater dishonour be perpetrated upon humanity than to confine it under conditions which are noisome and unhealthy, and should it desire better things, to visit the improvement with a penalty? The wealthy, to whom such an infliction is no burthen, can afford to protect themselves against an impure air, and the prospects of infection, but the poor man must be sacrificed either in his health or his pocket."

As Mr. Hickson too, justly observed to the Health of Towns Commissioners, "The window-duties as now assessed operate as a premium upon defective construction. The legislature now says to the builder—Plan your houses with as few openings as possible; let every house be ill-ventilated by shutting out the light and air, and as a reward for your ingenuity you shall be subject to a less amount of taxation than your neighbours." Sir Robert Peel said, in his late financial statement:—"It is supposed that a case is made out for the remission of the window-duties. Just let us look at the case of the duty on glass, and see what a much greater effect it will have upon the comfort of the labouring classes. Let us see how much more advantageous to the community will be the reduction of the duty on glass than the reduction of the window-duties. There are in Great Britain, as it is estimated, about 3,500,000 houses. There are not more than 500,000 houses which are chargeable with the window-tax. There are therefore 3,000,000 houses which require glass for the purpose of comfort, which, if you sanction the removal of this tax, you are about to benefit." Now the first part of this statement, if correct, and which the Premier feigned to consider a triumphant argument *against* the supposed necessity of a remission of the window-duties, is in reality a strong argument in favour of the loudly called for remission, since it shews that there is an immense number of residences badly, or much less perfectly, ventilated than they ought to be. Without questioning the good effects which will follow the reduction of the duty on glass, we would say, how much will it avail the poor man to know that glass windows can be formed more cheaply than before, when he cannot have the advantages of them because of this hurtful and unholy impost?

The question is one of vital importance to the public; we hope that the recommendation of the metropolitan delegates will be attended to, and that the rate-payers of every city, town, and parish, will present petitions to the House of Commons, praying for a repeal of the inconvenient, unsalutary, and unequal window duties; they are a tax on architectural appearance, a tax on cleanliness, a tax on HEALTH, and we might add, a tax on MORALITY,—for the connection between dark, dirty ill-ventilated dwellings, and degradation and vice, is close and indisputable.

MR. COCKERELL'S SIXTH LECTURE ON ARCHITECTURE.

ON Thursday, the 13th instant, the professor concluded his course at the Royal Academy. He said he had confined himself to Roman architecture because it was the most practicable for us of all the styles, uniting variety, convenience, and applicability, and because Canina's work, already so often alluded to, illustrated so many works of this style. It was to be regretted the students had not referred with him to the original authors. Few of them unfortunately had made themselves acquainted with the modern languages, and the best works on their art were therefore a dead letter with them. We were greatly deficient he thought, in English works calculated to exalt the mind and increase the resources of the student; comparatively worse than we used to be. In 1610, an edition of Serlio was published, and various editions of Palladio in English followed. None of the architectural classics had been published since, with the exception of Mr. Gwilt's version of Vitruvius, which was a very good translation. Fragments of Vasari were published, but not the complete work, which was to be regretted, as it ought to be generally read. It had been translated into French only recently. Many of the modern works, published every day in Italy, Germany, and France, deserved to be studied. Any foreign catalogue would shew how deficient we were in books of the same description. He wished the body of English architects, taking Quatremere de Quincy's Dictionary as a model, would produce a perfect cyclopædia of the art, one man executing one part and one man another, under the direction of an accomplished editor. All would surely be glad to aid in such a work, which would be of the greatest use, and would reflect dignity and glory on all concerned. It especially devolved on the association of architects now in existence. He trusted he was not stepping out of his path in making this suggestion; such a work was not within the province of the Academy, and he was anxious to see it commenced.

The professor then proceeded to treat of the Triumphal Arch as an especial feature of Roman architecture. It was gratifying to find that the recent applications of monuments of triumph were in commemoration of great and good men rather than of conquests. The late war might well have produced triumphal monuments, but had not done so, the sense of the country was against it; our great captain said the army had only done its duty; and Nelson looked to nothing beyond a place in Westminster Abbey. Our rivals had raised the *Arc de l'Etoile*, and must feel abashed by our forbearance.

All must admire the Roman triumphal arches; the earliest had but a single arch: they were probably perfected by Apollodorus, in the time of Trajan. The propylea of Egyptian buildings were somewhat analogous.

After explaining the proportions adopted by the Romans in their triumphal arches, the professor remarked there were two ways of varying these proportions, namely by the supply of height or the supply of width. The sublime was produced by excess of either. The sublime produced by excess of latitude was seen under the large arch of a bridge. He urged the application of the triumphal arch for a railway arch, and said for a novel purpose a novel effect should be sought. He then referred to the *quadrifrons*, or arch of four faces, and suggested that such monuments might be introduced with effect in our circusses, in Regent-street, and elsewhere, as memorials of great men. The Obelisk to Waithman at the end of Bridge-street, was not of great cost, nor important as a work of art, but nevertheless, as a memorial of an honest and able citizen, had a striking moral effect.

He would next direct their attention to the mausoleum. That at Xanthus, which was described in the 4th century (uniting architectural and sculptural decorations), was very important in an archæological point of view, as it served to guide us to that of Mausolus, which from its magnificence gave the name to all buildings of that class. Pliny said the latter was one of the wonders of the world. Scopas and four other sculptors were employed upon it. The professor exhibited a restoration of it, according to Pliny's account, shewing a

high stylobate, columns, and entablature, crowned by a pyramid in twenty-four steps. The whole height was 140 feet, the number of columns thirty-six. In this monument and that at Xanthus several new principles of great beauty were set forth. The parallelogram approached the square very nearly. The high stylobate furnished room for the sculptor. Its use in the tomb of Mausolus was hardly credited before, but was now confirmed by the discovery at Xanthus. The introduction of statues between the columns, mentioned in the fourth lecture, was a new arrangement to us, and a good one. The pyramid with which the structure terminated was adopted by Hadrian in his mausoleum long after.

The monument of Augustus, in the field of Mars at Rome, of which parts still remain, was a surprising work. This building was circular, with a portico, and was crowned by a pyramid of terraces, planted with the cypress and other trees, thus uniting the tumulus with the built pyramid. Strabo's account of this monument was the only one existing, and that was very slight. Very little was said about this extraordinary work (its portico was higher than the portico of the Parthenon), a proof that such were universal. We owed our knowledge of this monument, the professor said, to the researches of Canina. The tomb of Cecilia Metella was supposed also to have had cypresses at the top.

The mausoleum of Hadrian, erected 114 years after that of Augustus, was scarcely less remarkable. It was framed more on Greek models, and had two orders. The body of it still remained, and was known as the Castle of St. Angelo. The statues, which adorned it, had been thrown down on invaders, and were occasionally fished out of the Tiber, which runs at the foot of it.

Such works would not be attempted now by individuals, but might be by public companies. The cemeteries would soon become filled if some fresh arrangements were not made. The professor had proposed to one cemetery company an adaptation of the mausoleum of Augustus, filled with cells, and approached by inclined planes, with four chapels in the lower part, but the proposed outlay frightened them. Government might carry out such a scheme advantageously on Primrose-hill, or other elevated spot. Interment was a fitting subject with which to conclude the course. In taking leave of them, he would say,

"Make the Greek authors your supreme delight,
Read them by day, and study them by night."

It was chiefly by the study of great productions that artists became great; no one could examine the works of the great architects without deriving advantage. They must allow no opportunity for improvement to slip. In their magnificent profession the exercise of every faculty was called for; they must embody every discovery for the use of the public, and obtain general acquaintance with all the sciences. They must prepare themselves to meet men of all stations, from the prince to the mechanic, and must sustain a high moral character; they might then rely on obtaining the respect of all.

Fall of a Bridge.—The new Victoria Bridge at Spalding, which was considered an ornament to the town, and was lately erected by subscription, at the cost of upwards of 3,000*l.*, fell on the 26th ultimo, in consequence of an unusual high tide, accompanied by a tremendous storm, the effects of which in various parts we had occasion to record a fortnight since. A *local paper* states that "the bridge was upon the 'bow and string' suspension principle, with side-braces to prevent vibration during a gale of wind; and it is certainly possible that, in consequence of the tide having risen considerably above the usual level, a gang of lighters might swing foul of the side-stays, and draw the bridge out of its perpendicular; if so, the principle of the erection was destroyed, and as a matter of course its own weight brought it down. No blame is thought to be attributable to the contractor, though it would have been a fortunate circumstance, had it been considered at the time, to have had a few piles driven at each corner of the bridge, as a preventive against such an unfortunate and expensive mishap."

DRY ROT AND WORMS IN TIMBER.

BY JAMES WYLSON.*

In the first volume of The Builder, at p. 268, will be found a full description of the Payn-izing process for preventing dry rot, and which appears to possess considerable advantage over the Kyanizing method: the materials employed are sulphate of iron and sulphate of lime, both being held in solution with water; the timber is placed in a cylinder containing the solution of iron, the air is withdrawn by means of the air-pump, and the solution strikes into the wood so as thoroughly to pervade its pores; it is then placed in the solution of lime, and immense pressure being applied, the latter is forced into a combination with the iron, and immediate consolidation takes place; the timber is then found to have greatly increased in weight, and to have become unignitable; we may also reasonably infer that, with such a compound in its pores, decay must be greatly retarded, and the liability to worms reduced; the greatest drawback consisting in the increased difficulty of working. Between this process and Kyan's we see the marked distinction of *perfect* and *partial* impregnation. Another of the patent processes in use, namely Margary's (see The Builder, vol. i. p. 320), we should fear is of the latter class, the method consisting in steeping the wood in an open tank, with the hope of thorough saturation; in this process the material is sulphate of copper in solution with water, in the proportion of 1 lb. to 8 gallons. Dr. Parry recommended a preparation composed of bee's-wax, roll brimstone, and oil, in the proportions of 1, 2, and 3 oz. to ¾ of a gallon; to be boiled together, and laid on hot. Dr. Darwin proposed absorption, first of lime-water, then of a weak solution of sulphuric acid—drying between the two, so as to form a gypsum (sulphate of lime) in the pores of the wood; the latter to be previously well seasoned, and when prepared, to be used in a dry situation. A Mr. Bill is said to have discovered an insoluble varnish, of small cost, which enables wood by saturation, to resist decay for five years under the most trying circumstances.

In a report by Mr Pritchard, C.E., of Shoreham, in 1842, respecting the preservation of the timbering of the Chain Pier at Brighton, he states his perfect success in establishing pyrolignite of iron and oil of tar, as a preventive of dry rot; the pyrolignite to be used very pure, the oil applied afterwards, and to be perfectly free from any particle of ammonia; in that report, reference is made to a patent which it appears is held by Mr. Bethel, of Vauxhall Tar Works, for preparing wood by impregnating it with either or both of these materials; this treatment, as Mr. Pritchard remarks, supersedes the necessity of covering marine timbering with iron nails, as practised at Plymouth Dock and elsewhere.

The above preparations, and those noticed in a previous article, have for their object the *prevention* of dry rot; with respect to *cure*, when such has taken place, it is recorded that in a ship called the Eden, every trace of fungus was eradicated by its remaining eighteen months under water; now, it is well known that common salt, in small quantities, conduces to the decomposition of vegetable matter, and would, if applied, be liable to increase the evil; and, therefore, it must be inferred that a solution for the purpose in view—circumstances being supposed to admit of its adoption,—must be of a strength closely assimilating to sea-water, and which, while it destroyed the fungus, would have the effect of suspending decomposition in the ligneous fibre of the timber. Where facility is afforded for making it available, a degree of heat sufficient to destroy vegetable life may be adopted with great certainty for arresting the progress of any fungus growth, and destroying the power of regenerating; but it is attended with difficulty, since as much as 300° of heat is required to produce the desired effect. Where the disease is internal, and far advanced, the best cure is cutting out the parts affected; this is often necessary where it is external, but thoroughly scraping away the vegetable matter, and washing over with a powerful solution of one or the other of the kinds hereafter mentioned, and which are calculated to kill any infectious germ that may exist, will probably eradicate and permanently remove the evil: painting affords no protection against it. It is stated that Margary's process has been applied with success for arresting the progress of the disease where it has commenced; this prescription we believe is old enough, and unpatented, the only difference consisting in its being used four times as strong, which may be supposed to be necessary, since cure is generally more difficult than prevention.

When we consider the disastrous results proceeding from dry rot, the trouble and expense which it occasions, how often it originates in imperfect seasoning, and already exists in timber before it is converted to use, we see the importance of exercising the utmost precaution: as regards timber beams, they should invariably be sawn up in the middle of their breadth, the fresh surfaces turned outwards, and the growth reversed; and be thus bolted together, separated a little by blockings where the bolts pass through; by following this rule, it is ascertained whether decay has begun in the heart of the timber, and if so, whether to such a degree as to require the piece to be laid aside; the seasoning is sooner perfected, and by reversing the ends the strength of the beam is equalized. The soundness of a piece of timber may often be ascertained by sounding it with some metal instrument.

Timber, besides being subject to have its natural decay anticipated by premature decomposition, proceeding from unseasonable felling, imperfect seasoning, or the other destructive agencies to which we have referred, is liable from similar and other causes to be destroyed by various worms and insects; the soft and tender woods, and such as are of a saccharine nature in their juices, are the most liable to be assailed by them; those which are bitter are generally, if not invariably, exempt; it is obvious, therefore, that those palatable juices, which are so conducive to their production and propagation, should be got rid of by thorough seasoning, and, if further precaution be necessary, that the infusion of some bitter decoction into the pores of the wood will be an effectual preventive; and for which those woods that are of a regular grain afford sufficient facilities. Ash, if felled when abounding in sap, is very subject to worms; beech is also very liable to their attacks, likewise alder and birch; in these woods, water-seasoning is found to be a considerable preventive; the sap-wood of oak also is by it rendered less liable; smoke-drying, or burning fern, shavings, &c., under the wood, by impregnating it with bitter particles, also renders it exempt from worms; the silver fir is subject to them; the sycamore is rather so; alder is said when dry to be very susceptible of engendering them; the cedar, walnut, plane, cypress, and mahogany, are examples of woods which discourage their advances. For the extirpation or prevention of these destructionists, see recipes appended to this article.

Besides the common worm to which timber in its dry condition is liable, there are a variety of a more formidable character which commit their ravages on the bottoms of ships and the timbering of sea works: of these the most common are the pipe-worm (or *teredo navalis* of naturalists), a species of pholas (*pholas striata*), the lepisma, and another mentioned by Smeaton, which is almost invisible. The pipe-worm was originally brought from India to Europe; when first produced from the egg it is very small, but it soon attains a considerable size, in general acquiring a length of about three inches, and in the more favourable woods, the fir and alder in particular, fattening to its utmost size, and sometimes reaching full twelve inches in length. The more compact woods offer more impediment to its progress, although, from the formation and hardness of its head, it is enabled to penetrate even the most dense; bitter woods they do not at all attack, yet charring the surface of wood has not been found to be of any use as a preventive measure. Timber constantly under water, and which has been subject to their operations, has been aptly compared to a honeycomb, so extremely contiguous are their habitations, yet at the same time perfectly distinct; but while the perforation is so complete, it is unfortunately concealed within a thin external shell of undisturbed wood, which prevents the real state of the timber from being outwardly apparent, the infinitude of minute perforations by which they have communication with the water being invisible to the eye. The pholas

* See page 32 *ante*.

above particularized, does not confine its work of destruction to timber alone, but extends it to stone and other materials; it penetrates the wood when young, making an entrance of about a quarter of an inch in diameter, and enlarging it as it advances inwards and matures in growth, thus becomes imprisoned; it leaves off boring when full grown, and never extends its operations beyond reach of the water, from which it partly derives its sustenance. The lepisma attacks woods in the East-Indies immediately they are immersed in sea-water, and, though small, is very destructive in its operations, having been known to eat through the unsheathed bottom of a boat in three or four weeks. The small white worm last mentioned above, differs from the common ship-worm in its boring obliquely across the grain instead of lengthways; and its mode of operation consists in dissolving the substance of the wood rather than cutting into it, the harder woods offering the most obstruction to its progress, yet so far from sufficiently, "that a three-inch oak plank will be destroyed in eight years, by its action from the outside only." It appears as a small white soft substance like a maggot, but indistinct without a magnifier, and it is said not to live in the part of piling that is imbedded, or in any timbering situated above the tidal influence, that supply being necessary to its existence. These creatures yearly render necessary heavy repairs in the sea-dykes of Holland, from which we may imagine the Sampson-like achievement they might accomplish, if unheeded, amongst the piles whereon Amsterdam is built.

In the report before referred to, Mr. Pritchard disapproves of the use of Stockholm tar as a coating for marine timbering, considering it, in common with other tars containing vegetable matter, as detrimental to timber when exposed to salt water; and also, from its not penetrating the wood, being very soon eaten away by the salt acid of the sea. Common gas or coal-tar he also considers as doing much harm instead of good, forming a hard and brittle crust on the wood, which prevents "the damp and unnatural heat from the possibility of escape, owing to its containing ammonia, which burns the timber, and in a few years turns brown and crumbles into dust:" the pipe-worm, and others, he says, will destroy timber thus prepared in five or six years; and respecting such as has undergone the Kyanizing process, mentions a piece of heart of English oak in Shoreham Harbour, which was eaten to net-work by the worms in four years. For a sure defence against these assailants, he recommends the pyrolignite of iron and oil of tar, as specified by him for dry-rot. It appears that there has been used for years at the port of Liverpool, a wood called mora, or green-heart, the properties of which are well understood there, and which entirely resists the attacks of sea-worms; some of this timber seems also to have been imported into London within the last two or three years, but it is by no means generally known, although evidently it is of high importance that it should be so.

Besides worms, timber is exposed, chiefly in the Indies, to most dreadful havoc by some species of the ant tribe; from the destructive jaws of the termite or white ant there is nothing secure, unless it be of stone or metal; roofs, floors, and the other parts of buildings that are constructed of wood are infested by them, and when painted will present a solid appearance while they are completely hollowed; furniture and wooden utensils alike undergo their devouring ravages. The red ant of Batavia is another little devastator.

The following summary of the most approved formula for preventing and curing the evils of which we have treated, will, we believe, be acceptable to those interested in this particular subject; of course a recapitulation is avoided of those remedies which are already suggested by the tenor of our remarks:—

TO PRESERVE WOOD WORKS THAT ARE EXPOSED TO WET OR DAMP.

For those of an extensive nature, such as bridges, &c.—1. A coating of pitch and tar, strewed with powdered shells and sea sand, or smithy ashes, beaten small, is used by the Dutch, and found to be an excellent protection. 2. A paint composed of sub-sulphate of iron (the refuse of the copperas pans) ground up with any common oil, and thinned with coal-tar oil having a little pitch dissolved in it, is flexible and impervious to moisture. 3. Linseed oil and tar in equal parts, well boiled together, and used while boiling, rubbed plentifully over the work while hot after being scorched all over by wood burned under it, strikes an inch or more into the wood, closes the pores, and makes it hard and durable, either under or out of water. *For those of a more domestic nature*, a coating either of coal-tar or paint sanded over, are generally considered good defences; but they require renewal from time to time: the painting is most durable when sanded.

TO PREVENT ROT.

1. Boiling the wood for a few hours in sulphate of iron (green copperas), and leaving it for some days in a warm place to dry, renders it hard, compact, and impenetrable to moisture. 2. A very strong impregnation of common salt (muriate of soda) is a good protection where dryness is not an object. 3. Charring will fortify timber against external infection. 4. Coating with coal-tar will also serve that end: in both, the timber must have been thoroughly seasoned.

TO CURE INCIPIENT DRY ROT.

1. A pure solution of corrosive sublimate (corros. mur. of mercury) in water, in the proportion of an ounce to a gallon, used hot, is considered a very effectual wash. 2. A solution of sulphate of copper (blue vitriol), half a pound to the gallon of water, laid on hot, is another excellent wash, and cheaper than the preceding. 3. A strong solution of sulphate of iron is sometimes used, but is not thought such an effectual remedy as the copper. 4. A mixture of the solutions of copper and iron is occasionally adopted.

TO PREVENT WORMS IN TIMBER.

1. Anointing with an oil produced by the immersion of sulphur in aquafortis (nitric acid) distilled to dryness, and exposed to dissolve in the air, secures the wood, and imparts to it a not unpleasant odour. 2. An impregnation of lime is an excellent preservative, especially for sap-wood when in a dry situation. 3. Soaking in an infusion of quassia, by rendering the wood bitter, is a good protective. 4. The oil of spike is a good remedy. 5. The oils both of juniper and turpentine are efficacious in some degree. 6. *For small articles*, cover freely with copal-varnish or linseed-oil.

TO PREVENT WORMS IN MARINE TIMBERING.

1. A mixture of lime, sulphur, and colocynth with pitch, is a good protecting coat for boards. 2. Saturating the pores with coal-tar, either alone or after a solution of corrosive sublimate has been soaked and dried into the wood, also forms a good protection. 3. Sheathing with thin copper over tarred felt is esteemed the best protection for the bottom of ships from all marine animals; the joints should be stopped with tarred oakum. 4. Studding all the parts which are under water with short broad-headed nails soon covers the whole surface with a strong coating of rust, which is found to be proof against their penetration.

TO DESTROY THEM.

1. Rub the wood with poisonous ointments. 2. Whale oil is stated to have been applied with success.

TO DESTROY ANTS IN WOOD.

1. Kyanize the wood, corrosive sublimate being an effectual poison to them. 2. Arsenic is a good destructive. 3. Oils, especially essential oils, are good preventives. 4. Charring prevents their depredations. 5. Cajeput oil has been proved effectual for destroying the red ant.

WARMING RAILWAY CARRIAGES. — The Philadelphia correspondent of the *Chronicle* says:—"They are warming the passenger-cars on the railroad between New York and this city with hot water, in copper pipes along the floor and sides. These pipes proceed from a small boiler placed over the stove in each car—a capital invention."

NEW METHOD OF IMPELLING LOCOMOTIVES.—A patent has recently been obtained by Mr. G. C. Coffin, of Lunaford, Wilts, for certain improvements applicable to locomotive, marine, and stationary-engines. Mr. Coffin's proposed plan is an attempt to introduce the pendulum as a motive agent in machinery.

THE MUSEUM OF ECONOMIC GEOLOGY.

THE office of Mining Records and museum of Economic Geology is situated at Nos. 5 and 6, Craig's-court, Charing-cross. It is freely open to all persons every day in the year, except Sundays, Good Friday, and Christmas-day, with no other restriction than the visitor's writing his name in a book. The hours are from ten to four, from November to February inclusive; and from ten to five during the remainder of the year. The museum is in the department of the Commissioners of Woods and Forests, and is under the immediate direction of Sir Henry de la Beche, F.R.S., F.G.S., Mr. R. Phillips, F.R.S., being curator, and Mr. T. B. Jordan, keeper of the mining records.

It originated in a suggestion of the present director, who, in July, 1835, submitted to the Chancellor of the Exchequer that the persons employed upon the ordnance geological survey had opportunities of collecting specimens, and pointed out the advantage which would be derived from those specimens being arranged under the care of the Board of Public Works, and marked with the names of their localities referred to in corresponding maps. The specimens desired were of substances used in roads, for works, or buildings, and for useful and ornamental purposes in the arts, and from which useful metals are extracted. Apartments were allotted for the collection formed, and in February, 1837, Lord Duncannon, then Chief Commissioner of Woods and Forests, requested the present director to undertake the duties of the office, which he has since filled gratuitously, with zeal and ability. In 1839 Mr. R. Phillips was appointed to the office of curator; his duties being to make analyses on moderate terms, and to receive pupils for instruction. In the same year the place became the deposit of the mining records, Mr. T. B. Jordan being appointed keeper; the preparation of plans and sections, and of models of mines and machinery, in the workshops beneath the museum, being under his care. Permission is readily granted to make use of the plans and drawings, on application to the keeper, who is daily in attendance.

The building is easily recognized by the five granite-posts in front, which are specimens sent for those in the centre part of Trafalgar-square. Commencing near No. 5, the first post is from Aberdeen, the second from Peterhead, the third from Penryn, in Cornwall, the fourth from near Dublin, and the fifth from Dartmoor; only the two last are solid blocks. The museum consists of an entrance-hall, an apartment on the ground-floor, 46 feet by 18 feet 6 inches, a gallery on the first-floor, 103 feet long, and varying in width from 17 feet to 25 feet, a room on the second floor, a record-office, fitted up with folios and cases for plans, a private room for the director, a laboratory, and workshops.

In the room on the ground-floor, over the fire-place, is a painting on cement formed from the refuse of copper furnaces; it has a highly polished surface, and the capabilities of the composition are therefore hardly to be judged of on a small scale.* This room contains the specimens of building stones, procured by the commissioners appointed in 1838 to visit the different quarries for the purpose of selecting stone to be used in the new Houses of Parliament. These specimens are six-inch cubes, 197 in number, arranged according to their mineral composition, having the names of different buildings in which they have been employed labelled upon them, as well as the designation and locality. These are the specimens referred to in the report of the Building-stone Commission, dated August 27, 1839, No. 574, which document is already out of print. We find that the stones used in the Houses of Parliament are the following:—1. Oolite limestone, from Painswick, Gloucestershire, employed in the internal masonry. 2. Limestone of the oolite series, from Caen, Normandy, employed in the interior. 3. The magnesian limestone, from Steetly, Derby-

* In the *Athenæum* of July 22nd, 1843, we find the following:—"The Lady Chapel of the church of Saint Nicholas-des-Champs, Paris, has recently been enriched by a Christ, of colossal proportions, painted on lava, on a gold ground, by M. S. Perlet, after the manner of the Byzantine mosaics, which still adorn some of the Italian churches. This modern painting on lava is said to be one of the first essays of a kind peculiarly adapted to a northern climate, by its presenting a surface enamelled by fire, and therefore proof against damp."

shire, between Worksop and Chesterfield, used for the small internal courts. 4. Magnesian limestone, from Woodhouse, Mansfield, Nottinghamshire. This stone has a beautiful yellow tint, with very small black spots, and takes a smooth face. 5. The magnesian limestone, from Bolsover, Derbyshire, held, in the published report, to be the most eligible of the number: of coarser grain than No. 4. 6. Magnesian limestone, from Stone Ends, North Anston, Yorkshire, between Worksop and Sheffield, used for the plinth of the building towards the river. 7. The magnesian limestone, from Woodhouse, near Mansfield, Nottinghamshire, Lindley's Bolsover Quarry, used for a portion of the mouldings and carvings. 8. Magnesian limestone, Norfall, Anston, Yorkshire, between Worksop and Sheffield, used for the structure generally. 9. Another specimen of magnesian limestone, from Steetly, Derbyshire, used for the small internal courts. 10. Magnesian limestone, from North Anston, Yorkshire, between Worksop and Sheffield, used for the superstructure generally. The colour of this stone is dark yellow, being darker than that from Norfall Anston.

In the collection is a specimen of the stone from Taynton, Oxfordshire, used in the interior of St. Paul's Cathedral; it is a coarse shelly oolite. The sand-stone used in the restoration of Hereford Cathedral, is from Capler Quarry, eight miles south-east of Hereford, on the Wye, and is in colour a reddish drab. The pieces of granite and marble are some of them very beautiful. We found the black serpentine, the black and the veined gray, and reddish marble,s the white alabasters of Devonshire, Derbyshire, and Scotland. Many of these are exhibited wrought into tazzas and ornamental vessels. The history of porcelain is exhibited in specimens of pottery from Egypt, Etruria, and Mexico, down to our times, when it is formed into tiles for church pavements, and into such rich and elegant forms as are here exhibited by Messrs. Copeland and Garrett. There are specimens of Keene's cement, Broseley clay, Stourbridge clay, and a series illustrating the uses of plaster of Paris. Mr. C. H. Smith has contributed an Egyptian capital, copied by himself, we believe, in granite, from one in the British Museum, by way of illustrating the perfection to which the art of tempering steel is brought in modern times.—The gallery on the first floor is devoted to specimens of coal, and of the English and foreign ores. There are also some interesting illustrations of the various states which metal assumes under the influence of art or nature; as of the change which iron undergoes from the fibrous to the crystalline state when employed in axles. Copper, and sulphur, and their uses, are also shewn. There is a beautiful series illustrative of the mode of preparing dies for coinage, and the electrotypes are the best collection that we ever saw. The process of making swords and gun-barrels is illustrated, and most clearly explained by Mr. Wilkinson, of Pall Mall. Though the ornamental is not professedly sought after in the collection, it happens that there are several curiosities most interesting to the artist and the man of taste. Among these is a model of the monument to William de Valence, senior Earl of Pembroke, half-brother of Henry the Third, who died in 1304, exhibiting the use of enamel in the costly tombs of that period. The model was prepared under the direction of Albert Way, Esq. The figure is entirely gilt, and the shield emblazoned in blue, red, and gold, the horizontal surfaee of the the tomb being covered in diaper, with heraldic achievements. The collection of enamels is highly interesting, and includes, amongst other things, a reliquary of the 12th or 13th century, and a casket of the 14th century, emblazoned with the arms of England and Valence. There is a candlestick of the 14th century, and a pyx of the same date. On the wall of this room is suspended a "Flemish Monumental Brass, of Lodewyc Cortewille, of Cortewille, near Liege, who died 1504, and of his wife, Colyne Van Castre, who died 1496;" the analysis gives the following result:—

Copper.....	64	0
Zinc.....	29	5
Lead.....	3	5
Tin	3	0
	100	0

The room on the second floor contains surveying instruments and mining tools, specimens of bricks and tiles, and models. The skill of our ancestors is evidenced in a coat of mail, weighing seventeen pounds, and containing many thousand links, each one being separately rivetted. In conclusion, we advise our professional brethren to avail themselves of the advantages which this collection offers; it has hitherto been little visited, and it is with the view of gaining it a greater share of attention, and the assistance in contributions which architects can often so easily afford, that we have been led to devote so much space to it.

* * *

COVENT GARDEN IN THE SIXTEENTH CENTURY.

In the last part of the "Archæologia," there is a copy of the counterpart of a lease from the Earl of Bedford to Sir William Cecil, afterwards the Lord Treasurer Burghley, of part of the "Enclosure or Pasture, communely called Covent Garden, scituate in Westm'." It was executed in 1570, and is interesting to investigators of metropolitan antiquities, as affording information with regard to the state of a portion of London now occupied by a numerous population; but which, in the reign of Elizabeth, presented a very different appearance. The portion in question is said by the lease to be "dyvyeded from the rest of the said Enclosure called Covent Garden on the west syde of the said porcyon or p'cell nowe demysed w^th^ certayne stulpes and Rayles of wood, and is fenced w'th a wall of mudde or earth on the East next vnto the Comune high waye that leadeth from Stronde to St. Gyles in the fyeldes, and on the west end towardes the South is fensed w^th^ the orcharde wall of the said S^r^ Willm Cecyll, and on the South end w^th^ a certayne fence wall of mudde or earthe, beinge therebye devyeded from certayne Gardens belonginge to the Inne called the Whyte Heart, and other tenementes scituate in the high streate of Westm', comunly called the Stronde." Mr. Albert Way, the present accomplished director of the Society of Antiquaries, who laid this document before the members, remarks in a letter which accompanied it:—

"With regard to the limits of Covent Garden, as defined in this lease, I must appeal to those who are versed in the ancient topography of the metropolis to explain the position of the various boundaries described in the document: but I would offer an observation on the modes of inclosure whereby, in the reign of Elizabeth, property so immediately in the vicinity of the city of London was fenced, even where it adjoined the great highways at the very entrance of the metropolis. It is curious to compare the approaches of London, as they now appear, with their aspect nearly three centuries since, as set forth in the terms of this lease, and to view the advances of civilization and luxury, illustrated by the comparison of the conspicuous public monuments and suitable fences which now adjoin Hyde Park-corner, or the Cumberland-gate, with the mud walls and 'stulpes' which presented themselves to the visitor of London in the 16th century at the gates of the city. At that period the ancient process of forming walls by means of indurated earth was still extensively employed: in the eastern counties this was called dawbing, and the term is still retained in Norfolk and Suffolk; but the process is now used, to any considerable extent, in the more remote county of Devon only. The subject of the cob-walls of the western counties, and of the use of concrete, generally, in all ages, and particularly in Spain, where important ancient structures formed with mud walls may still be seen, has been curiously illustrated in the "Quarterly Review," Vol. LVIII., by the able pen, as I believe, of Mr. Richard Ford, of Heavitree.

"Sir William Cecil had his dwelling, originally built by Sir Thomas Palmer in the times of Edward VI., upon the site of the parsonage-house of St. Martin's-in-the-fields, situate in the High-street, at the south end of Drury-lane. Sir William had bestowed much pains in beautifying this his abode, which adjoined the property of the Earl of Bedford, and had an orchard contiguous to the inclosure, known as the Covent-garden, a portion of which was leased to him by the earl. This portion is described as divided by certain stulpes and rails of wood. This obsolete term, stulp, is now retained only in the dialect of Norfolk, and is used to signify a low post fixed as a boundary. In the first English Dictionary, which was compiled in Norfolk during the reign of Henry VI., called the 'Promptorium Parvulorum,' this word occurs, as well as the greater part of those archaic terms which are now retained almost exclusively in the East Anglian dialect. In this curious dictionary is found 'stulpe or stake, *paxillus*.' The same term is used by the chronicler Fabyan to denote the bulwark or fence at the approach of London Bridge on the Southwark side, where he relates how the rebel Jack Cade drove back the citizens of London 'from the stulpes in Southwarke, or brydge fote, unto y^e^ drawe-brydge.' A.D. 1450."

BATHS AND WASH-HOUSES FOR THE LABOURING CLASSES.

The committee, after a month's consideration, have selected the plan of Mr. P. P. Baly, as the best of twenty-two which were submitted to them in competition.

The unsuccessful candidates have received intimation that their drawings will be returned, on application at Crosby-square, after the 27th instant, and that the committee have resolved that the successful competitor shall not be permitted to see the plans of the other competitors. We do not see the necessity or advantage of this resolution, and if it is to be used as a reason for the exclusion of all persons from an examination of them, utter a decided protest against it. We have already received letters from competitors inquiring why their drawings are to be detained till the 27th: we trust it may be for the purpose of exhibiting them. We shall hope to lay information on the subject before our readers next week.

DANGER OF IMPROPERLY FIXING STOVES.

The carelessness with which close stoves are constantly placed so as to jeopardize whole neighbourhoods, is deserving of severe reprehension and really calls for some interference. We constantly see them put up in immediate proximity to wooden fittings, even in a recess *lined* with wood and sometimes with the smoke-pipe passing through a hole in a chimney-board! Because no accident occurs immediately, it is thought to be perfectly safe; they forget that the wood so exposed to the heat becomes every day more and more ignitible, and are not awakened to the danger till the house is in flames, which further, may reach the property of others not equally deserving of such an infliction.

Only a few nights ago, a house in Charlotte-street, Bloomsbury, would probably have been burnt down from the above cause, if the occupier of the adjoining house had not been aroused by smoke and the smell of fire, and obtaining entrance, succeeded in stopping the progress of the flames.

Many of the late fires have originated in this manner, but experience unfortunately seems to have very little effect until it is paid for.

The constant occurrence of fires in the metropolis is a subject for most serious consideration. The amount of property destroyed annually, to say nothing of the loss of life, is immense; if but a small part of it were yearly expended by the community in a proper way, this might be prevented and all its consequent distress and misery.

COURT OF CHANCERY.—The ancient hall of Lincoln'-inn, in which the Chancellors of England have sat for so many years, is nearly stripped of all the armorial bearings which decorated its walls, and the stained glass that ornamented the windows, the whole of which have been removed to the new hall, Lincoln's-inn. The admired picture of "Paul pleading before Agrippa," which has so long ornamented the end of the hall, has also been removed to the new building. It is said that it is in contemplation to add the present kitchen (which is only divided by a passage) to the present hall, and then divide the building into three courts, one for the Lord Chancellor, the others for the Vice-Chancellors. If this plan is carried into execution, the temporary courts at present occupied by Vice-Chancellor Knight Bruce and Vice-Chancellor Wigram will be pulled down.—*Globe.*

DISSOLUTION OF THE CAMBRIDGE CAMDEN SOCIETY.

Sir Herbert Jenner Fust's Judgment in the stone altar and credence table cause, printed in a recent number of this journal, and the retirement from the Cambridge Camden Society of the Bishop of Exeter, the Bishop of Lincoln, the Chancellor of the University, and others, have led to a proposal for the dissolution of that association, and will, it is to be hoped, prove a heavy blow and great discouragement to those who have insidiously endeavoured for some time past to guide the nation to Rome.

On Thursday, the 13th inst., while the honorary secretary was reading to the society a report from the committee—

The president rose, and said, that the announcements he had just made of accessions to the society, however gratifying, especially by their promise of the extension of the society's usefulness in distant colonies, would not adequately supply the vacancies which he felt it his duty, though not required by the rules, to announce from the chair. The members were aware that one of their patrons, the Bishop of Exeter, had not only withdrawn, but had published his retirement and disapprobation to the world, assigning reasons of which it did not now become him to contest the validity, however much he might be prepared and desirous to disavow the imputations therein conveyed. Another of their patrons, the Bishop of Lincoln, had since withdrawn his name, on grounds similar to, and brought to his notice by, those adopted by the Bishop of Exeter; and subsequently the committee had received an intimation simply announcing the retirement of the Chancellor of the University, followed, as was to be expected by the usual etiquette, by that of the Vice-Chancellor. If the members were really animated, as he believed to be the case, by the principles which had always been professed by the society, he felt assured that they would neither be surprised nor offended, however much they might be distressed, by the remainder of the report of the committee, the reading of which he had interrupted in order to secure for it their more serious attention. The report set forth that—

"The circumstances just communicated to the society by the president demand from the committee, at this the earliest opportunity, a statement of their view as to the manner in which these announcements ought to affect its conduct at the present juncture.

"The retirement of two of its episcopal patrons, accompanied in the case of one of them by public expressions of disapprobation, and followed by that of the chancellor and his representative, have appeared to them to place the society in a position incompatible with its character as an association of members of the church and university. They feel satisfied that any advantages which might be expected from its continued operations would be insufficient to counterbalance the positive evil that must result from even an apparent disregard of the sentiments of those invested with authority. They therefore recommend unanimously that the SOCIETY BE DISSOLVED.

"This recommendation can only be carried into full effect at the anniversary meeting. Till then the ordinary meetings, which have been already convened, will be held *pro formâ* for the despatch of necessary business. The interval will be occupied in winding up the society's affairs. The recommendation now announced will be submitted at that meeting for, what the committee earnestly hope it will receive, its ratification."

This was received with a dead silence. It was evident that the announcement had taken the meeting by surprise. The president proceeded —He was well aware that the recommendation which the committee had felt it their duty to make to the society, was one which largely taxed its confidence, as well as its obedience to the main principles by which it had been always governed. Still it would never do for him, it would never do for them, to walk about the university, and feel that they were members of a society from which the Vice-Chancellor had withdrawn his countenance. No time for dissolution could be more appropriate than the present, and for any sacrifices required by duty they would console themselves with the reflection that the society had done its work, though its work was done. They would remember a sentence to that effect in his address to them in May last, where he had dimly foretold the consummation to which they were now invited: a sentence suggested, as the context would shew, partly by the considerations which he had been now urging upon them, and partly by the prospects of that change in the condition of the society, which had been anticipated as the consequence of the near removal of himself, and other its founders and principal managers, from the University. His career here was closed: it was a satisfaction, amidst some regret, that their light should go out together. Neither let them suppose their *good* would be lost, though he hoped that whatever harm, if any, had come from their operations, this act, when consummated, would blot out for ever. The principles of union in church-membership, to say nothing of architecture, which had been generated and fostered by the society, would fructify more generally and forcibly, stripped of whatever was frivolous or inappropriate, in other ground and in other forms. What he had said would, he trusted, reconcile the society to the decisive and unmistakeable step recommended by the committee. It had, in addition, the highest sanctions of which it was capable. He felt assured that the society would feel that it was more in conformity with their position and their sense of duty, than to prolong, however effectually, an uneasy existence.

And in May next, therefore, unless a fresh arrangement be made, the Cambridge Camden Society will terminate its existence. To a looker-on, this step seems extreme and unnecessary; and many will say, with a correspondent, "Is there no other course open? Must a society, constituted for useful and praiseworthy ends, be dissolved because grave errors have been committed? Cannot its management be amended? Is its original and proper object inseparably connected with the course of proceeding objected to? Is the 'Study of Ecclesiastical Architecture,' to which these high personages are favourable, not capable of being pursued unless in connection with the encouragement of Popish absurdities or errors? Cannot useful hints be given to churchwardens for the preservation of the ancient and sacred edifices intrusted to their charge, without intruding into the office and duties of the archdeacon? Cannot a design be furnished for a church at Hong Kong, unless a Romish almanac be simultaneously printed at the Pitt Press, by a secretary of the society, or the envelope of the plan be stamped with the effigies of saints of the Romish calendar?

"The dissolution of the society, by its own act, because of complaints made on grounds here hinted at, amounts to a confession on its part that it considers its avowed object not worth carrying out, unless it can be made the means of promoting other ends not avowed; and which, if they had been avowed, the society would never have been composed of its present members."

The following letter takes the same view of the subject:—

"Sir,—As a young member of the architectural profession, and therefore deeply interested in whatsoever concerns it, I venture to solicit your favourable consideration of this address.

"I have observed that your able periodical is ever ready to advance and uphold the principles and study of ancient ecclesiastical architecture, apart from the superstitious and subtle feelings now too generally prevalent in describing and encouraging the admiration of the beautiful remains of our forefathers. Surely, this may always be done without making it the vehicle for disseminating those dangerous views entertained with strange infatuation by many members of the two universities. I have been led to these remarks by a rumour of the intended dissolution of the Cambridge Camden Society, and, in common with many, I should regret the benefits likely to be lost to the profession and to the community by such a proceeding. For when we see so influential and able a society, composed of men who, from their stations, intellects, and pursuits, are so capable of rendering good service to the study of Gothic architecture, if their information be conveyed according to a proper spirit—*i. e.*, apart from the advocacy of Romanism—all sober-minded men will lament that so much advantage should be lost by the cessation of their labours. I, for one, cannot see that because most of our glorious specimens of ancient architecture were the offspring of mistaken minds in matters of religion, it necessarily follows, we, in these reformed days, should inseparably mix up in our admiration and study of them the same feelings that actuated their founders.

"Let us hope, then, that should the Camden Society resolve upon a dissolution, it may only be for the purpose of remodelling and cleansing itself from the views and opinions which have hitherto characterized it, and will pursue its labours for the advancement of Gothic architecture, purely as an *architectural* society, and leave theology for a separate and distinct study.

"In the hope that you will not deem these remarks unworthy of notice in your next number, I am, &c., "H. H.

"February 18, 1845."

PROFITS ARISING FROM GAS APPLIED TO PUBLIC IMPROVEMENTS.

It is not generally known that the very large annual profits arising from the Manchester Gas Works are applied (by a committee called the Improvement Committee), for the purpose of forming new streets, widening existing ones, opening such as appear to require increased ventilation, and in general to such improvements as more especially relate to the forming of better thoroughfares in the town.

These gas-works, now the most extensive in Great Britain, or in the world, were first commenced in 1817, and in December of that year, the Manchester public were first supplied with gas, from the establishment, at the charge of 15s. per 1000 cubic feet. The funds for this purpose were provided by the Commissioners of Police, out of the police funds. At the present period, the smallest consumer only pays 6s. per 1,000 cubic feet, and the largest (say of 80,000 feet) only 5s. per 1000 feet. With these comparatively low charges the gas committee will, however, pay, or have paid, during the present year, a sum exceeding 50,000*l.* to the committee of the improvement fund! Extensive as are the Manchester Gas Works at the present moment, a further extension is, it is said, now contemplated. Such is the increasing demand for gas, and such its probable immediate want, that the public need not wonder if, in the next two years, the works should be further extended 33 per cent.

It can only arise from an ignorance of these facts that other towns do not follow the example set by Manchester. How many improvements deeply affecting the health and comfort of towns are continually postponed or entirely laid aside for want of means. Here is a plan by the adoption of which an income to supply this very want may be derived, and, at the same time, a pecuniary benefit would accrue to each gas-consumer, in paying less than he does at present for the light he has occasion for.

While on the subject of gas, we would advert to a plan, lately put forth by a Mr. Blofield, for supplying London (and all other towns situate on or by the principal railway lines) with gas at a much cheaper rate than at present. Mr. Blofield says:—

"In the first place, I propose that extensive gas works be erected, either near Birmingham, upon the Staffordshire coal-field, or somewhere upon the Derbyshire, Nottinghamshire, Lancashire, Yorkshire, Newcastle (the best locality) or Bristol coal-fields.

"The gas to be manufactured in the country upon the spot, and conveyed through pipes, laid along the railways, to a large reservoir in the neighbourhood of London.

"By making the gas in the country, in the neighbourhood of the pit's mouth, instead of in London, it would save the following expenses, among several others:—

"It would save the expense now paid for having the coal conveyed such a distance.

"It would save all those other numerous intermediate expenses, incurred between its purchase at the pit's mouth and its delivery in London.

"It would save the enormous expense of the eighteen *separate* gas manufactories at present in the metropolis, with all their numerous establishments, independent of those in the country on the lines of railway." H.

GOTHIC ORNAMENTS FROM THE CATHEDRAL CHURCH OF YORK.

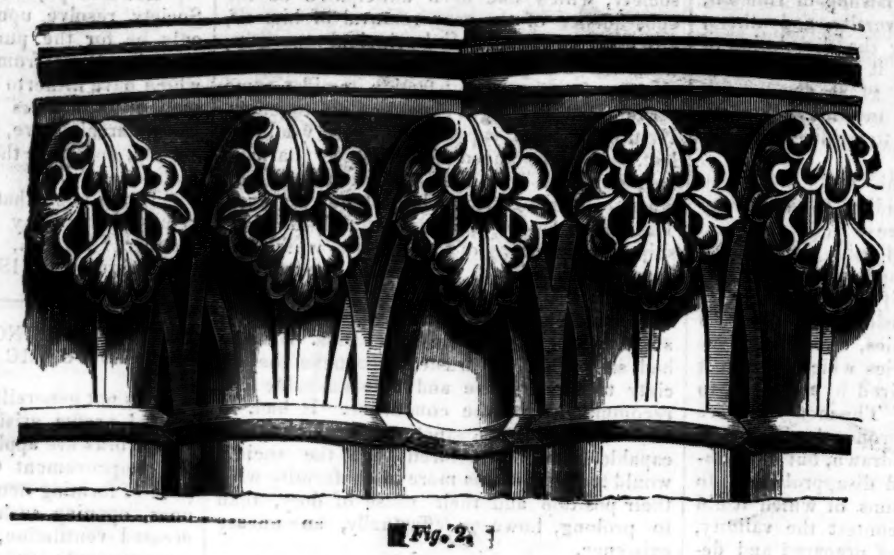


Fig. 2.

Fig. 1.

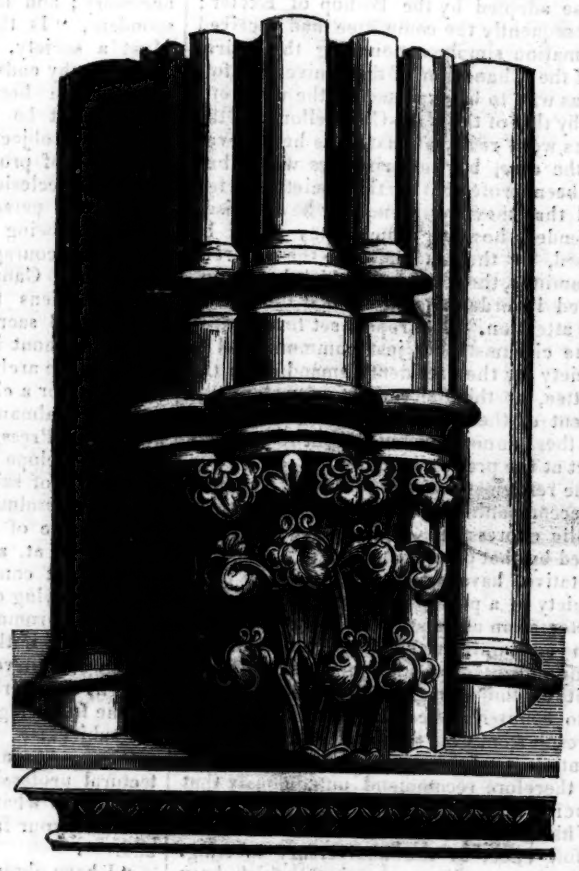


Fig. 4.

Fig. 3.

GOTHIC ORNAMENTS FROM THE CATHEDRAL CHURCH OF YORK.

The metropolitan church of St. Peter, at York, is one of the most beautiful of those extraordinary edifices which our forefathers have left us, in proof of their piety and skill. Like many of our ancient buildings, it displays the workmanship and style of various periods, and may be made to illustrate a considerable portion of the history of pointed architecture. The crypt under the choir was commenced in 1171. The south transept was built by Archbishop Walter Grey, about the year 1227; and the north transept by John le Romayne, treasurer of the church, between 1250 and 1260. The nave and aisles were commenced by his son, Archbishop le Romayne, in 1291, and finished about 1330. The choir was built between 1361 and 1400, and the western towers soon after the latter date.*

The above engravings form part of a series of ornaments from this cathedral church, which we propose to lay before our readers at intervals. They are reduced in size from Halfpenny's work,† and will be found as beautiful *per se*, as they are valuable from exhibiting the style of different epochs.

Fig. 1 represents part of the clerestory in the south transept with the cornice from which springs the groining of the roof. The windows are 6 feet high, and 1 foot 10 inches wide.

Figs. 2 and 3 shew the foliage of the capitals in the north transept; and

Fig. 4 a corbel in the west aisle of the north transept, supporting clustered shafts.

All these, as may be seen, are of the early English period. The lancet widow of the clerestory, the dog-tooth moulding around the arch, the boldly-sculptured foliage of the capitals, are all characteristics of the style.

The foliage and mouldings of this period are usually well executed; the former is generally in high relief. The mouldings are boldly cut, and present deep hollows, which produce effective shadows. A plain round with a good projection, and hollow below it, such as is seen over the corbel, fig. 4, is a moulding very generally used in buildings of this style.

The extreme length of York Minster outside is 518 feet, including the projection of the buttresses, the width 140 feet, the transepts from north to south 241 feet. The height of the nave is 93 feet, the height of the centre tower 198 feet, and the height of the western towers to the top of the pinnacles 200 feet.

* See Mr. Britton's history of the building in his "Cathedral Antiquities."

† "Gothic Ornaments in the Cathedral Church of York."

PORTLAND VASE.

We observe with indignation that some *charitable* individual, unknown, has paid the fine of 3*l.* levied on the tipsy rascal who destroyed this interesting and unique relic, and has thus saved him from the short imprisonment to which, in default of payment, he had been sentenced. We regret that we cannot make known, for public gratitude, the Samaritan who has thus stepped in to prevent the infliction of the very immensurate punishment permitted in the present defective state of the law, and has offered a premium to some other sot for the destruction possibly of some choice illuminated MS. at the Museum, or of the last new picture at the National Gallery. It is to be hoped that the legislature will promptly pass a law for the protection of such works, and not allow the weakness of one individual to offer impunity to the vicious habits of another.

MACHINE FOR RAISING STONES EMPLOYED AT ASSIZE COURTS, LIVERPOOL.

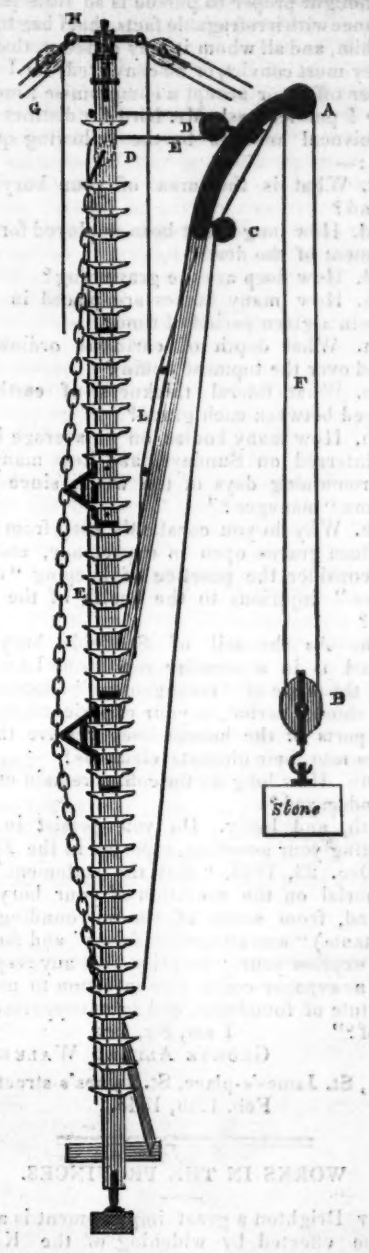


Fig. 1.

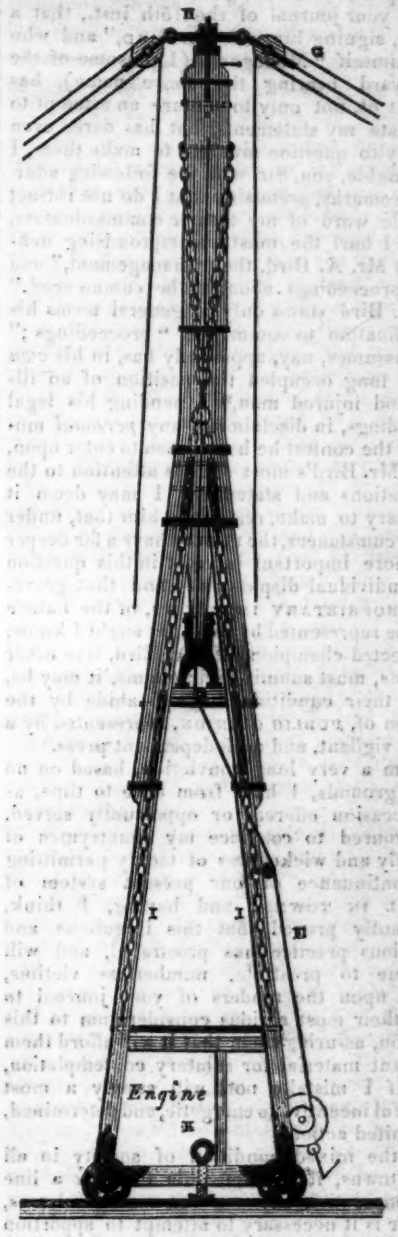


Fig. 2.

In consequence of the reference to the mode adopted by Mr. Tomkinson for raising building materials at Liverpool, made in page 34 *ante*, Mr. Hawley, the clerk of the works, has forwarded the annexed representations of the machine, drawn on a scale of 16 feet to 1 inch. Fig. 1, shews the side of the derrick, fig 2, the end. The wheels run on a tram-way laid parallel with the walls of the building.

A. Cat-head; four sheaves.
B. Large three-sheave block.
C. Single sheave to keep hauling part from stone.
D. Strong single sheaves for derrick-rope to pass over to the crab.
E. 7 in. rope for hoisting and lowering derrick.
F. Fall for hoisting stone, &c., worked with 3½ horse-engine.
G. Guy-ropes; three parts to each worked with single purchase crabs.
H. Swivel-cross for attaching the four guy ropes.
I. Chain back-braces.
K. Screw for hoisting sheaves when turning corners.
L. Braces for strengthening derrick.

Mr. Hawley says, "I believe Mr. Tomkinson is the only builder that has this kind of shear legs in use at the present time. He first used them at the Liverpool Custom-house, but with a fixed engine, and the fall-rope was conducted from the legs to the engine by means of passing through snatch-blocks, and the engineer was guided by signals. We have the same legs in use at the new Assize-courts, with the engine attached, and it is consequently locomotive. The rapidity with which large stones are raised is quite extraordinary. Mr. Tomkinson also first put in practice the travelling-carriage on timber scaffolding, for raising building materials, the idea originating with one of Mr. Tomkinson's foremen, named John Day. It has received great improvements since, as all other first inventions will do, from experience, our greatest tutor."

We examined the machine for raising stones by steam in operation at Liverpool a short time ago, and saw that it accomplished its work with wonderful rapidity and precision.

St. John's Gate, Clerkenwell.—In a recent number, we mentioned some proceedings under the new Buildings Act relative to this interesting relic. For some time past, the lodge-entrance to the old monastery has been tenanted as a public-house, and it is apparently in a very dilapidated state from want of proper repairs and attention. A strong desire exists on the part of many antiquaries and the inhabitants of the neighbourhood, to restore this interesting part of the ancient building, and to convert it into a literary and scientific institution, for the benefit of the inhabitants of the crowded district of Clerkenwell, in the same way as Crosby-hall for the city, as it might easily be made available for the purpose.—*Globe.*

LONDON BURIAL-GROUND PRACTICES.

SIR,—You did me the honour to insert a communication in THE BUILDER of February 8, on "Spafields Burial-ground," and observing in your journal of the 15th inst., that a person, signing himself "A. BIRD," and who calls himself "Manager" (I presume of the grave-yard bearing the above name), has thought fit, not only to venture an attempt to invalidate my statements, but has dared even publicly to question my right to make them, I will trouble, you, Sir, with the following additional remarks, premising that I do not retract a single word of my former communication, whilst I hurl the most uncompromising defiance at Mr. A. Bird, the "management," and the "proceedings about to be commenced." As Mr. Bird states only in general terms his determination to commence "proceedings;" as he assumes, nay, apparently has, in his *own* belief, long occupied the position of an ill-used and injured man,* I, pending his legal proceedings, in disclaiming any *personal* motive in the contest he has chosen to enter upon, invite Mr. Bird's most serious attention to the observations and statements I may deem it necessary to make, reminding him that, under any circumstances, the PUBLIC have a far deeper and more important interest in this question than individual disputants — and that grave-yard PROPRIETARY INTERESTS, of the nature of those represented by their, for aught I know, self-elected champion, Mr. A. Bird, like other interests, must submit their claims, it may be, reveal their condition, to, and abide by the decision of, PUBLIC OPINION, represented by a free, a vigilant, and an independent press.

From a very long conviction, based on no slight grounds, I have from time to time, as the occasion offered, or opportunity served, endeavoured to convince my countrymen of the folly and wickedness of tacitly permitting the continuance of our present system of BURIAL IN TOWNS; and having, I think, abundantly proved that this iniquitous and pernicious practice has prostrated, and will continue to prostrate, numberless victims, I call upon the readers of your journal to apply their most serious consideration to this question, assuring them that it will afford them abundant material for salutary contemplation, and, if I mistake not, will supply a most powerful incentive to energetic, and determined, and united action.

In the mixed condition of society in all large towns, it is impossible to draw a line of demarcation between the various classes, neither is it necessary to attempt to apportion to each individual his own share of inevitable, well-deserved punishment attendant upon his neglect of the first dictates of natural feelings and common sense; but it especially concerns the middle and poorer classes to reflect that circumstances, frequently inseparable from their condition, compel their residence in localities principally the seats of shamefully-overcharged burying-grounds; that it is an *indispensable* condition of healthy existence that the atmosphere they breathe shall be in a pure condition; that in the immediate neighbourhood of, and even at a considerable distance from, all such places, annoyance, discomfort, disease, and death, are the invariable and abiding concomitants; that the locality, the area, the condition of the soil, the numbers buried in a given period, the depth at which bodies are interred, the constant upturning of earth yet reeking with human corruption, and the opportunities afforded by free ventilation for the dissipation of the invariably injurious products of human decomposition,—that these circumstances must and do influence the sanatory condition, most certainly, of the surrounding residents, and even the health of the entire district.

Sir, these statements, which I unhesitatingly make, are true or false. Perhaps Mr. Bird, whilst arranging his counter-statements to disprove my allegations, will favour your readers with *his* opinions, as I understand that he entertains some original notions on the burying-ground question. I do not wish to press unnecessarily upon Mr. Bird, but the course he has thought proper to pursue is so little in accordance with irrefragable facts, that I beg to assure him, and all whom it may concern, that he or they must convict, or be convicted, for I will neither offer nor accept a compromise; meanwhile I publicly ask Mr. Bird for distinct and unequivocal answers to the following questions:—

1st. What is the area of your burying-ground?

2nd. How long has it been employed for the interment of the dead?

3rd. How deep are the graves dug?

4th. How many bodies are placed in one grave in a given period of time?

5th. What depth of earth is ordinarily placed over the topmost coffin?

6th. What lateral thickness of earth is allowed between each grave?

7th. How many bodies on an average have you interred on Sundays, and how many on the remaining days of the week, since you became "manager?"

8th. Why do you constantly keep from five to fifteen graves open in expectancy, and do you consider the practice of keeping "open graves" injurious to the health of the district?

9th. As the soil of Spafields burying-ground is in a *peculiar* condition, I believe from the mode of "management" adopted, in how short a period, in your experience, do the soft parts of the human body resolve themselves into their ultimate elements?

10th. How long do the coffins remain entire or undecayed?

11th, and lastly. Do you persist in reiterating your assertion, reported in the *Times* of Dec. 23, 1843, "that the statement" (a memorial on the condition of your burying-ground, from some of the surrounding inhabitants) "was altogether false;" and do you *now* express your "surprise that any respectable newspaper could give insertion to matter destitute of foundation and so unsupported by proof?"

I am, Sir, &c.,
GEORGE ALFRED WALKER.

11, St. James's-place, St. James's-street,
Feb. 19th, 1845.

* CLERKENWELL.—Yesterday a respectable-looking man, who stated that he was the manager of the burial-ground at Spafields Chapel, came before the magistrate to complain of a report from that court in the newspapers of that morning relating to that burial-ground. He declared the statement which appeared was altogether false, and expressed his surprise that any respectable newspaper could give insertion to matter destitute of foundation and so unsupported by proof. * * * * *

The applicant said it was very hard that such a report should remain uncontradicted. He would certainly push the matter further.—*Times*, December 23rd, 1843.

WORKS IN THE PROVINCES.

AT Brighton a great improvement is about to be effected by widening of the King's Road, and putting back of the battery. The width of the present road (about 40 feet) is to be doubled by means of a sea-wall which will connect the eastern marine promenades with the western. In the immediate vicinity of the battery this width will be much increased by the present site of the battery being thrown into the road. The estimates amount to 14,000*l.* A subscription has been set afloat, and is proceeding most prosperously, for the erection of a fountain on the Steyne.

At Cirencester, the committee of the proposed Agricultural College have selected the design of Messrs. Daukes and Hamilton, architects of Gloucester and Cheltenham, from a large number, among which were some from architects of eminence in London. The college will occupy the delightful site on Lord Bathurst's grounds known as Port-farm, near the railway station at the junction of the Stroud and Tetbury roads, thus presenting a perspective of two bold fronts. The design is in the Tudor style, of three stories high; the upper story being lit by picturesque old-fashioned dormer windows, of the style prevalent among the collegiate buildings of Oxford. The centre is occupied by a tower, the upper part of which is intended to form an observatory for meteorological and other scientific purposes. At the Privy Council held on Tuesday week, her Majesty was pleased to approve of the grant of a charter of incorporation of the subscribers to this important institution.

At Manchester the subscriptions for public parks, &c., amounted, at the close of last week, to more than 30,000*l.* It is highly gratifying to find that a sum has been thus obtained, which promises, at all events, that the first steps in this important measure of public health and recreation shall be taken on a scale worthy of the extent and importance of this vast hive of industry. The subscription is equivalent to one of 2s. each from every man, woman, and child in the community, assuming the population to be 300,000.

At Romford a new corn Exchange is about to be erected. Two premiums are at the present time advertised for the two best designs to be sent in by the 1st proximo.

At Harrow, a very handsome subscription has been raised for the purpose of re-building the head master's boarding-house, which was destroyed by fire in the year 1838. Further means being requisite for the attainment of the object in view, the committee have publicly solicited the assistance of *Old Harrovians*.

At Liverpool the stock-brokers and shareholders have determined on building a new and splendid Stock Exchange. The subscription, which was but recently opened, has augmented most rapidly, and the list now amounts to 50,000*l.*; one sharebroker alone subscribed 4,000*l.*

At Carnarvon, the fine old castle which has been for some time in a dilapidated state, is by order of the Commissioners of the Woods and Forests, to be put in complete repair.

At or near Stratton St. Margaret's, Wiltshire, the guardians of the Highworth and Swindon Union have resolved on building a new union workhouse.

At Coventry, land has been purchased for a cemetery, and it is the intention of the town council to complete the work, so essential to the health as well as to the feelings of the inhabitants, without delay.

The province of Ulster will, ere long, possess a college for the education of the future ministry of the Presbyterian Church. The contributions towards the building of the new college are proceeding most satisfactorily. Already from forty-two contributors a sum of 2,500*l.* has been realized, besides 500*l.* more in smaller sums, making in all 3,000*l.* Concurrently with this movement, a deputation is at present in London, to solicit from her Majesty's government an endowment for the proposed college.

At Huntingdon, Lady Olivia Sparrow has purchased the theatre for the purpose of converting it into a chapel of ease. The *Globe* states, that an eminent architect is to be engaged to effect the necessary alterations in the appearance and interior of the building, and the sanction of the bishop of the diocese will be obtained for its consecration. Funds will also be provided for the endowment of it, a considerable portion of which will be given by Lady Olivia.

The rage for building is now exhibiting itself in the neighbourhood of Stratford. Between three and four hundred houses are being erected on a farm, recently in the occupation of Mr. Thomas Spence. On Wanstead Park, the like number of villas, besides various others on a minor scale, in other parts of these localities, will soon be in a habitable state.

INSTITUTION OF CIVIL ENGINEERS.

FEB. 11, 1845.—The President, Sir John Rennie, in the chair.

The first paper read was a description, by Mr. Thomas Hughes, Assoc. of the method employed for draining some banks of cuttings on the London and Croydon, and London and Birmingham Railways, also a part of the retaining wall of the Euston inclined plane. The method adopted was the introduction of Watson's drain-pipes, which were made of the iron-stone clay of Staffordshire; their surface is pierced with numerous apertures, small externally and enlarging inwardly, which form prevents their being clogged by the earth, and allows whatever enters to pass freely into the pipe. In their application on the London and Croydon Railway, a longitudinal trench, 4 feet deep, was dug on the crown of the bank, at a few feet from the edge, and other trenches, about 30 feet apart, descended from it to the open drain by the side of the permanent way. On the London and Birmingham Railway the descending trenches were 80 feet apart, and varied from 3 to 6 feet in depth; the pipes were introduced into these trenches, and the clay which had been dug out was then laid over the pipes; from the longitudinal line of pipes, upright pipes were occa-

sionally introduced, for the purpose of ventilation. The panels of the retaining wall were drained by boring holes through the brick-work at given distances by a powerful auger worked by a machine, and then inserting cast-iron pipes of the same form as those of clay. This process proved so effectual, that the wall which before shewed evidence of water being lodged behind nearly the whole length, was now evidently drying fast, and the water oozed out from the pipes at all times, even during the severe draught of 1844.

The paper induced an animated discussion upon retaining walls, in which Mr. R. Stephenson gave an interesting account of his views at the time when he designed the walls of the Euston incline, the changes which subsequent experience had worked in his opinion, and the reasons which induced him to adopt the process of staying the walls with cast-iron beams, stretching from one side to the other.

The next paper read was a description of the Ouse Bridge on the Hull and Selby Railway, by Mr. W. B. Bray, Grad. The Act for this railway was obtained in 1836, and it forms with the Leeds and Selby, which was opened two years previously, a direct communication between Leeds and Hull; they were both surveyed and executed from the designs of Messrs. Walker and Burges. The river Ouse at Selby is 176 feet wide and 14 feet deep at low-water; the tide rises 4 feet at neap-tides, and 9 feet at spring-tides. The bed of the river consists of silt resting on a bed of quicksand, beneath which is hard clay.

The foundations of the abutments were formed of piles driven into the clay, and on these longitudional sleepers and transverse sills were tenoned, the intermediate spaces being filled with broken stone grouted with thin mortar. On this platform, brick abutments with stone quoins, string courses, and copings were built. They were subsequently tied by wrought-iron rods to heavy stone piers. There were six pieces placed in pairs, which were founded on piles driven into the clay, and tenoned to receive the cap sills, on which cast-iron frames were strongly bolted, the ends being furnished with cutwaters of cast-iron plates. The superstructure consisted of six ribs of cast-iron an inch and a half thick, resting on transverse girders, one being placed under each line of rails, and one under each handrail, the rails themselves being laid on longitudional sleepers, 12 inches wide and 6 inches deep. In the Act there was a clause requiring that this bridge should have an opening arch for the passage of steamers and vessels with fixed masts; this consisted of two similar leaves each keyed on to a cast-iron shaft 9 inches square, with turned journals, plummer blocks, and trusses. The total weight of iron-work was 590 tons, and the erection of the bridge was let to Mr. Briggs, of Ferry-on-Trent, and the Butterley Iron Company. The communication was accompanied by a register of the tides at Selby during the year 1842, and was illustrated by a well-executed model, presented to the institution by Mr. James Walker.

Mr. J. B. Redman exhibited a portion of a fender pile which had been driven into the works of the new terrace pier at Gravesend, in 1843, and in which the "teredo navalis," a pipe-worm, had made great inroads. It appeared, however, that the ravages of this insect were confined to a space of about 3 feet above the level of low-water spring-tide, and that therefore if wood-work was well defended by copper sheathing or scupper nails at and below that point, no great injury would be received by piles in any situation.

The meeting was adjourned to Tuesday evening, the 18th instant, when the following paper was read:—

"Description of the Great Britain steamship, with an account of the trial voyages," by T. R. Guppy, Associate.

The Fine Arts.—The number of foreign artists now studying in Rome amounts to 405; 300 of whom are painters, 58 sculptors, 39 architects, and 7 engravers; 158 of those artists are Germans, 25 French, 33 English, 17 Russians, 7 Poles, 13 Swedes and Norwegians, 31 Danes, 19 Belgians, 3 Dutch, 11 Hungarians, 10 Spaniards, 7 Portuguese, and 14 Americans. The Italian artists are 542 in number, besides 2,000 mosaic-work makers.

DECORATIVE ART SOCIETY.

On Wednesday, the 12th inst., an introductory paper was read by Mr. Vicary, "On the physiology of timber trees considered with reference to manufacturing purposes."

He commenced with a notice of the few Government and private collections of specimens of timber in this country, and expressed regret that a scientific arrangement had been seldom attempted, whereby a study of the varieties of timber could be promoted. He contrasted in a forcible manner the attention devoted in our national museums to stuffed birds, &c., with the almost total neglect of a useful classification of timber, although entering, as it does, so largely into our every-day comforts and conveniences.

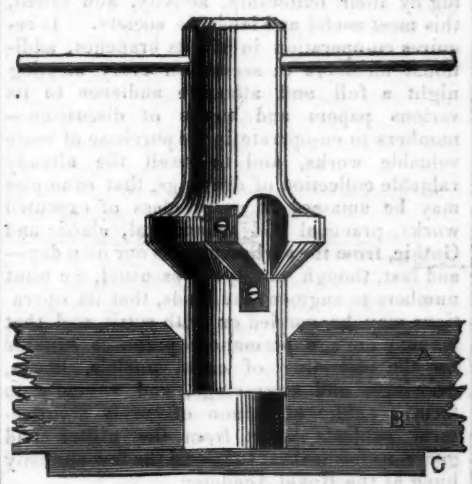
The growth of trees, and the capillary action of the sap, &c., the formation of knots, and the consequent weakness wherever they occur, were next noticed, as also the effects of pruning and lopping at a wrong season, thereby generating what is usually termed "dry rot."

The patent processes of Mr. Payne were introduced, exhibiting in a series of experiments his modes of preserving timber from decay, and rendering it incombustible, also of hardening any English woods, and dyeing them of various colours, so as to make them available for the purposes of the cabinet-maker.

On Wednesday, the 26th instant, a paper will be read "On the interior decorations of the Collegiate Chapel of St. Stephen, at Westminster, as finished by Edward III., A.D. 1348." L.

TOOL FOR CHAMFERING TRACERY.

Sir,—I beg to hand you a sketch of a tool used in chamfering tracery, after being pierced by the one shewn in page 621, Vol. II. A, represents the tracery as cut; B, a piece of plank



fastened to the tracery by hand-screws, to keep the tool steady; C, a slip of wood screwed to the plank to prevent the tool cutting too deep. The arris, or principal part of the part chamfered, should be cut away, which would much accelerate the work. The block should be made of dry, hard wood, as much depends on its being kept steady to its work. Your insertion of this would oblige,

Yours respectfully,

Newport, Jan. 7, 1845. Jas. Pickard.

How to Put Out a Chimney on Fire.—A correspondent of the *Carlisle Journal* states that while visiting a few days ago in Berwickshire, "I saw applied by a lady the following mode of putting out a chimney on fire, which I think should be generally known, for its simplicity, efficacy, and expedition. The chimney of the parlour, where an additional supply of wood was put upon the fire, at once caught fire. The lady immediately brought a plate full of common salt—shut the door of the apartment to prevent a current of air, and sprinkled a few handfulls of salt upon the fire. In about a minute and a half the fire in the chimney, which roared like distant thunder, was quenched. This neither caused smoke, nor precipitated soot, nor put out the fire, nor disturbed the operations of the breakfast, which were going on. The *rationale* of this I believe to be, that, in the process of burning the salt, muriatic acid gas is evolved, which extinguishes fire."

CHURCH NEWS.

A new church has just been completed at *Yeovil*, in Somerset, under the direction of Mr. Benjamin Ferrey. The style of the building is early English; it is cruciform in plan, and capable of accommodating 800 persons. The expense of the building has been about 3,000*l.*——The new district church at *Montpelier*, Bristol, was consecrated a few days since. The edifice is cruciform, in the style of architecture that prevailed at the end of the 13th century; it is rather plain, built of native stone, with freestone quoins, dressings, &c. A tower is placed at the centre of the west front; it was originally intended to have carried a lofty spire, which, with the tower, would have been 140 feet in height, but this important feature has been postponed, and thus the pleasing appearance of the exterior is greatly diminished. The pulpit is of stone, panelled on either side, and supported by a corbel of deeply-sunk mouldings. The lectern is of oak. The chancel is ascended by five steps. The altar-piece is composed of arcaded panelling, with detached shafts, cornice over, set with the ball flower, and the spandrels filled with foliage. The roof is devoid of plaster, and the characteristic Gothic feature carried out by rendering the construction ornamental. In the nave the roof is not so light as in the chancel, in consequence of the Incorporated Society having prescribed the use of the tie-beam. The whole of the woodwork is stained and varnished, and has the appearance of oak. The font, placed near the western and principal entrance, is of stone, the sides ornamented with elegant foliage, &c.; round the pedestal are four detached shafts; the whole stands on an octagonal base. The architect is Mr. John Hicks.——*Chester* Cathedral is about to undergo a thorough restoration, for which purpose a liberal subscription has been entered into. The cost of the works already contracted for is 2,504*l.*, but the sum required will be 5,000*l.* Amongst the contributors are his Royal Highness the Prince of Wales, 105*l.*; the Dean and Chapter, 100*l.*; the Dean of Chester, 100*l.*; the Marquis of Westminster, 105*l.*; Earl of Stamford, 105*l.*; Bishop of Chester, 100*l.*——It is in contemplation to open the new church at *Wilton*, Wilts, at Easter. The raised chancel is to be paved with porcelain tiles of a gorgeous pattern, except one small portion, which will be covered with small squares in agate, lava, and precious stones collected abroad by the Countess of Pembroke. No pews or galleries will be admitted, open sittings in carved oak being already placed on the floor of the building. A spacious area is preserved around the exterior, terminating in a stone palisado-work on the side next the public highway.——A new church of large dimension is to be erected at *Ashby Wolds*, Leicestershire, towards the funds for which her Majesty the Queen Dowager has liberally subscribed. The Marchioness of Hastings has given a site; and amongst the other contributors are the Earl Howe, the Bishops of Peterborough and Lichfield, the vicar of Ashby-de-la-Zouch, Colonel Buckley, Mrs. Lane Fox, &c.——The Honourable and Rev. G. M. Yorke, formerly of Queens' college, rector of St. Philip's Birmingham, has commenced soliciting subscriptions from the parishioners for the necessary repairs of that sacred edifice. We understand that donations amounting to 1,000*l.* have been received, and that about 600*l.* more will be required.——An appeal for contributions in aid of building a church in the new district of *Pembroke Dock*, has been extensively circulated. There is now a population of 4,000 inhabitants (still rapidly increasing) without a church nearer than Pembroke, a distance of two miles and half. The incumbent of Pembroke has promised, conditionally—that is, if the church shall be built and consecrated during his incumbency, a donation of 200*l.* A subscription having been opened, the sum of 400*l.* has been placed in the hands of the treasurer, exclusive of the above donation, which is available only under the aforesaid conditions.

An Artesian well is being sunk in Berkeley-square, in lieu of the old pump which has for so many years past supplied the square and its vicinity.

New Books.

The Botanic Garden; or, Magazine of Hardy Flowering Plants: to which is added, The Fruitist; a Description of the best Apples, Pears, and other Fruits, their Qualities, Habits, and Culture. By B. MAUND, F.L.S. Small 4to. and 12mo. January, 1845.

THIS work has enjoyed an uninterrupted career of twenty years, and is thoroughly established in public favour. Such a result is well merited, for the editor has evinced his sense of the support he has received by so many successive additions to the original plan, without in any instance increasing the price, that we have long regarded it as the most ample, elegant, and cheapest horticultural periodical in the kingdom. But, as if to outdo his former self, Mr. Maund seems to think that having borne flowers of all hue, it is time his work should bear fruits; accordingly, he has now added "The Fruitist." This is a most valuable addition, and we must recommend it to every one who has a garden, from the peer to the peasant. Indeed, it is from regarding the advantage of the cottager that we are chiefly induced to notice it here. The instructions for the culture of the fine varieties of fruit-trees figured in it are mainly adapted for dwarf-trees, so that there is scarcely a labourer's garden so small as not easily to admit three or four of these, which he can cultivate at his leisure, and find his recompense in the ornamental blossoms they will put forth in spring, and the substantial and savoury fruit they will yield in autumn.

We deem it one of the most gratifying signs of the times that the well-being and comfort of the labourer now occupies the thoughts and attention alike of the legislator and the philanthropist; that efforts are every where making to implant in his heart the feeling, too long banished from it, that he is *not an intruder here*, but a valuable, essential, and integral part of the body politic. Few things will conduce more to effect this blessed change than giving him a garden with a few fruit-trees, which may be at once his pride and his profit. How truly does Mary Howitt, who knows the depths and has taken the soundings of the poor man's heart, sing, "like an angel in the clouds," of the Poor Man's Garden:—

"But he, the poor man, sees his crops,
And a thankful man is he,
For he thinks all through the winter
How rich his board will be!
The rich man has his wall-fruits,
And his delicious vines;
The fruit for every season,
His melons and his pines.
The poor man has his gooseberries,
His currants white and red;
His apple and his damson-tree,
And a little strawberry-bed.
A happy man he thinks himself,
A man that's passing well—
To have some fruit for the children,
And some besides to sell."

All success, therefore, to the "Botanic Garden" and "The Fruitist."

Correspondence.

ASSOCIATION OF ARCHITECTURAL DRAUGHTSMEN.

SIR,—As you have on many occasions afforded space in your widely-circulating journal for the purpose of disseminating the rules and principles which govern the Association of Architectural Draughtsmen, I beg, with your kind permission, again to call the attention of the profession generally, and more especially of your correspondent of January 11, to the address and real objects of the society, premising, for the information of those who possess copies of the laws of the association at first issued, that during its operation, now two years and a half, it has been found expedient to materially remodel the rules which first governed it.

The meetings of the association take place on the first and third Wednesdays in every month, and are held at 33, Southampton-street, Strand.

A leading object in its formation, that of securing to unemployed members and invalids a weekly stipend, was that which received on the part of the committee of management the most serious consideration; it also attracted considerable attention out of the society, and many objections having arisen against it, it was found eventually expedient to make it a mere voluntary "benevolent fund," to which members might or might not subscribe, as their means or inclinations prompted. This accumulating fund tells its own purpose, and in proportion to its amount, so will be its utility if discriminately laid out.

The next object of importance, that of providing employers with asssistants and "unemployed members" with situations, has been found fully to answer every expectation of its promoters, many members having secured eligible situations through its influence, and formed connections with architects which are likely to be of material and permanent benefit to them.

Among the new rules an exemption is provided in favour of members in practice for themselves in regard to the quarterly contribution drawings, architectural prints being made admissible instead; the fines also against members generally for the non-production of the said drawings are limited to 5*s*., which those who have occasion from press of business or other circumstances, can avail themselves of; and, further, with regard to these "quarterly drawings," members are allowed to withdraw their first when they contribute their ninth, and so on in rotation, leaving at all times eight in the folios of the society; this rule has given great satisfaction to every one. Apart from the general management of the society, a number of the members have formed a "book club," which is conducted in the usual manner, an architectural work being selected, the members ballot for the reading and the choice of purchasing the work at half its original cost. Having now stated the leading objects of the society, allow me to press upon such of your readers as belong to the architectural profession the importance of supporting by their fellowship, activity, and talent, this most useful and laudable society. It requires co-operation in all its branches, additional members to secure on every meeting night a full and attentive audience to its various papers and topics of discussion—numbers to co-operate in the purchase of more valuable works, and to swell the already valuable collection of drawings, that examples may be amassed of every class of executed works, practical and ornamental, classic and Gothic, from the earliest ages to our own day—and last, though not least, as usual, we want numbers to augment the funds, that its operations may be carried on with spirit, and that we may engage permanent premises suitable for the collecting of casts, models, books, drawings, and engravings, and annually to form a public exhibition of purely architectural subjects apart from the glitter and gorgeous frames that surround the few annually hung at the Royal Academy.

Allow me, in conclusion, to apologize to you for the length of this communication, and to remain, Sir, your constant reader,

A MEMBER OF THE BRITISH ASSOCIATION OF ARCHITECTURAL DRAUGHTSMEN.

London, Feb. 6th, 1845.

COMPETITION FOR LAYING OUT GROUND, KING'S-ROAD, READING.

SIR,—Having submitted a design for laying out for building purposes ground situated in the King's-road, Reading, I can bear testimony to the correct statement, dated 5th Feb., and signed "Fairplay," which appeared in the last week's number of your highly useful journal. I paid two visits to Reading, the first to examine the site, and the second to attend at Mr. Blandy's office, for the purpose of giving *my opinion in writing* upon the merits of the two designs which in my judgment should appear most worthy of the premiums offered. This was by no means so difficult a task as might have been expected, for although *forty-seven* designs had been submitted, I found, upon examination, not more than *half* that number to be finished and completed in accordance with the instructions issued. Some of the designs exhibited were so largely at variance with the rules laid down, that I felt surprised they had not been at once rejected. It would, therefore, be a satisfaction to learn that the successful designs *are* in rule and order; and perhaps Mr. Blandy, through the medium of your widely-circulated journal, may be induced to communicate that fact for the gratification of those gentlemen who have by their exertions afforded him so much professional information. I am, Sir, &c.,

London, Feb. 18th, 1845. VERITAS.

CORRESPONDENCE ON NEW METROPOLITAN BUILDINGS ACT.

JURISDICTION OF OFFICIAL REFEREES.

SIR,—In consequence of my letter upon this subject, which appeared in your journal of the 8th instant, I was applied to on the following Monday to attend before the official referees on the succeeding Thursday, to argue a case for a party who had received a summons then to attend, upon the information of a district surveyor, for alleged irregularities under the "New Metropolitan Buildings Act;" which was an opportunity I gladly availed myself of, as some nice points were involved in the peculiarities of the case, that may, in the present state of excitement upon the question, be interesting to your readers. I of course shall carefully avoid remarking on what occurred at the conference, confining myself to statements that came to my knowledge as instructions, but I will not omit the opportunity thus afforded of stating the great courtesy with which we were received, and the evident desire to elicit the truth. From the course of proceeding adopted, I feel satisfied that substantial justice will be done through the medium of the equitable powers intrusted to the referees for all matters in difference arising after the 1st January last, thus avoiding the ruinous litigation that has arisen heretofore upon the construction of various clauses of the old Act.

My ground of complaint is, that they have assumed an authority for works "commenced" previous to 1st January, which, being upon construction of terms in a penal act, are open to be discussed in a court of law, upon the ground of maintaining civil rights, which every citizen* is entitled to do, unless controlled by such an equitable jurisdiction as is evidently given to the referees after the 1st January.

If this view be correct, and a doubt exists as to the construction to be put upon terms or words, it appears the rational course would be for the referees at their own cost, upon a case put, to seek the best legal advice, and not by summons to individual parties, put them to considerable expense to argue points that must all tend pretty much to the same result.

Under my advice, we appeared by protest. After this long exordium, we will now to the facts, which, if contrived for the purpose, could not more completely have met two important points for the object of raising the question, viz. the "*bona fides*" of the matter, and the intended buildings projecting beyond the line of other houses. I will confine myself in this letter to the "*bona fides*," as, if that is established, the other point falls to the ground. A party having determined some years since to erect five fourth-rate houses within the operation of the old Act (but prevented by circumstances over which he had no control), gave due notice to the district surveyor of his intention on the 27th December (the case is surrounded with much matter distinctly proving "*bona fides*" within the knowledge of the district surveyor, who had been in correspondence upon the subject, and assented in writing nearly two months previous that such a proceeding would be in accordance with the Act). I prefer assuming he had not heard of the intention until the 27th December, as more completely raising the argument upon other cases so circumstanced.

The party, between the time of notice and 1st January, proceeded with the work as rapidly as possible, having put in the footings of the whole length of the front wall and of one end wall, and indicated by projections the party-walls of the five houses, with some few courses of the walls in addition to the footings. The work was steadily proceeded with until 14th January, when the builder received a notice to suspend operations. The opinion of the referees, as addressed to Mr. Allen, noticed in your journal 25th January, must now be taken as their dictum, as in this case the district surveyor founded his complaint to

* This word appears to be an apposite illustration of the word "commencement." I contend for using it in its largest sense, and refuse to be limited as meaning a citizen of London.

the referees upon this their opinion; and upon such grounds they issued the summons.

The peculiarity of this case is, that an admitted legal notice was given under the then existing Act, neither that nor the present Act in any way controlling the progress of works, except that under the new Act, if suspended for a certain period, fresh notice must be given, evidently only to inform the district surveyor when the works being in operation require his superintendence; sec. 13. A controlment of time as to roofing in (for finishing I repudiate, see my letter in your journal of the 8th inst.) clearly applies to houses commenced before 1st January, and that only in new districts.

I also contend that any the slightest commencement is provided for in schedule A, having been so commenced upon legal notice under the former Act, and I must presume this schedule has been overlooked in the issuing of the summons, inasmuch as the schedule declares the former Act, 14 Geo. 3, c. 78, is repealed except as to certain points, one of which precisely meets this question:—"And except as to offences committed, penalties incurred, and fees payable, and any proceedings taken or commenced, or which might be taken or commenced under the said Act on or before the said 1st day of January, 1845." I contend that the word "proceedings" must be taken in as large a sense as the word "commencement." Legal notice having been given, the works if not, "might have been commenced," and to prove that it could not mean legal proceedings, it will be necessary only to proceed through a few more paragraphs of the "Extent of Repeal," where we find, to prevent any doubt, it is stated, "and to legal proceedings in respect of accidental fires." The party complained of would willingly have given a fresh notice under the new Act, as the thickness of walls, &c. would have been precisely similar; but the sanction of the referees to the further ground of complaint of the district surveyor, that these buildings projected beyond the general line of houses, would have implied the impossibility of building on the ground if the present footings were repudiated. This is a question of considerable importance in future operations, and I will endeavour to prove in a subsequent letter, that whatever the intention of the Act may have been, there is no such existing enactment.

Your obedient servant,
GREENWAY ROBINS, Architect.
Hill-street, Peckham, Feb. 15, 1845.

SHOP-FRONTS UNDER NEW BUILDINGS ACT.

SIR,—In schedule E of the new Metropolitan Buildings Act, under the head "Wooden Shop-fronts and Shutters," it is stated that the woodwork of any shop-front must not be fixed nearer than 4½ inches to the centre line of a party-wall. Again, the succeeding clause requires that, in case the woodwork be fixed at such distance, then a pier or corbel, built of stone or of brick, and of the width of 4½ inches, must be fixed in the line of the party-wall, so as to be as high as such woodwork, and so as to project one inch, at the least, in front of the face thereof. Does this mean that an unsightly mass of brickwork is to be carried out from the face of an external wall to the distance of an inch beyond the projection of the cornice, or merely have reference to breastsummers and story-posts? Your valuable opinion upon these points will confer a favour upon, Sir, yours obediently,

A SUBSCRIBER.
Islington, February 12, 1845.

[The words of the Act are perfectly clear. If the woodwork be put up 4½ inches from the centre line of the party-wall, a pier or corbel, 4½ inches wide, built of stone or brick, or other incombustible material, must be fixed in the line of the party-wall, so as to project one inch, at the least, in front of the face of such woodwork. The object, and a very important one, is, of course, to prevent the communication of fire from house to house by means of the entablature. We do not wish to suggest evasion; but it is obvious that if the woodwork be any thing more than 4½ inches, say even 5 inches, the corbel cannot be insisted on. For the general good, however, the intention of the enactment should be adhered to. It will not be difficult to prevent the corbel or pier from injuring the appearance of the front; better still, the entablature, &c., may be formed of incombustible material.—ED.]

Miscellanea.

DIVING BELLS.—The first diving bell we read of was nothing but a very large kettle suspended by ropes, with the mouth downwards, and planks to sit on fixed in the centre of the concavity. Two Greeks at Toledo, in 1588, made an experiment with it before the Emperor Charles V. They descended in it with a lighted candle to a considerable depth. In 1663, William Phipps, the son of a blacksmith, formed a project for unloading a rich Spanish vessel sunk on the coast of Hispaniola. Charles II. gave him a ship, with every thing necessary for his undertaking, but being unsuccessful, he returned in great poverty. He then endeavoured to procure another vessel; but failing, he got a subscription, to which the Duke of Albemarle contributed. In 1687, Phipps set sail in a ship of 200 tons, having previously engaged to divide the profits according to the twenty shares of which the subscription consisted. At first, all his labours proved fruitless; but at last, when he seemed almost to despair, he was fortunate enough to bring up so much treasure that he returned to England with the value of 200,000*l*. Of this he got about 20,000*l*., and the Duke of Albemarle 90,000*l*. Phipps was knighted by the king, and laid the foundation of the fortunes of the present noble house of Mulgrave. Since that time, diving bells have been often successfully employed.—*Mechanics' Magazine.*

CASE-HARDENING OF IRON NAILS, SCREWS, &c.—When electro-deposition is used in coating iron with copper, the iron is liable to be corroded either during the process or afterwards, an oxide of iron being formed beneath the copper coating. To prevent this, it is proposed to coat, or case-harden, the iron with lead, or an alloy of lead, before the coating of copper by electro-deposition is applied. A patent for this invention has lately been granted to Benjamin Brunton Blackwell, of Newcastle-on-Tyne, Gent.; and William Norris, of Exeter, C. E. The case-hardening is performed by first freeing the surface of the articles from any scale that may attach to them, and then placing them, with parings of hoof, horn, or bone-dust, in a crucible well luted, and subjecting them to a red heat, taking care to remove the articles as soon as a thin surface of case-hardening is obtained. The articles may be coated with lead or an alloy of lead, by first freeing their surfaces from scale, and then plunging them into a vessel of the metal in a molten state. The alloys of lead which are preferred for the purpose here stated are, first, from one-tenth to one-fifth of tin combined with a given quantity of pure lead; and secondly, one part of antimony, two parts of tin, and fifteen parts of pure lead. When the articles have received this first coating, they are next to be placed in a solution of copper, exposed to the influence of a galvanic battery kept at a temperature of from 80° to 100° of Fahrenheit. The claim of the patentees consists in first coating the articles with lead or an alloy of lead, and afterwards coating them with copper by means of galvanism.

IMPROVEMENTS IN LEAD PIPES.—A patent for this purpose has recently been secured in America by Messrs. C. and G. E. Sellers, of Cincinnati. In manufacturing lead pipes by this process, the metal from which it is to be formed is fused, and poured into a receiver of cast-iron, or other metal of great strength, which receiver is heated by means of a suitable furnace, so as to preserve the metal in a fluid state. The lower part of the receiver contains a die, having an opening through it of such size as to adapt it to the forming of the outside of the pipe, and a case or mandrel to determine its size or calibre within. It also inclosed the apparatus which is employed for the purpose of cooling the pipe as it leaves the core, and also of keeping the temperature of the core below that of melted lead, by which means we effectually prevent the combining of the lead with the surface of the core, which takes place when lead is in a fused state, and is subjected to heavy pressure. The fused lead is to be forced out by means of a ram or plunger, made to fit the cylindrical cavity containing the lead, the said plunger being brought down by means of an hydrostatic press. The patentees state that "what we claim as our invention is the employment of a tubular core or mandrel, divided longitudinally into chambers, through which heated water, air, or steam, is to be passed, in the manner described, and for the purpose of preserving the said core at a temperature somewhat below that of melted lead, by which device the lead is effectually prevented from adhering to the mandrel. We claim the manner of forming the packing of the ram, by attaching to its end the piece of wrought-iron, rendered thin at its lower edge, by forming the face of the said piece concave, for the purpose above set forth. (The purpose here alluded to is, keeping the piston tight, and preventing the escape of the melted lead around the edges of the ram or piston.) We claim the combination and arrangement of the parts constituting the water-chamber, consisting of the tube, the bed-piece, and the conical die—the supply of water thereto being given, and governed substantially as described."

ARTHUR'S OON.—This curious specimen of Roman masonry was destroyed many years since. In a work entitled *Caledonia Romana*, recently published by Bell and Bradfute, it is thus described:—"This building was of a circular form, its shape in some measure resembling that of a common bee-hive. It measured at the base from twenty-nine to thirty yards in circumference, and continued of the same dimensions to the height of eight feet, from which point it converged gradually inwards in its ascent, till at an elevation of 22 feet, the walls terminated in a circle, leaving in the top of the dome a round opening 12 feet in diameter. On its western side was an arched doorway, 9 feet in extreme height, and above it an aperture resembling a window, of a slightly triangular form, 3 feet in height, and averaging nearly the same in width. The whole was formed of hewn freestone, laid in regular horizontal courses, the first of them resting upon a thick massive basement of the same material, which, to follow out the simile, represented with curious fidelity the common circular board on which the cottage hive is usually placed. The interior of the structure corresponded with its general appearance from without; the only difference being in the concavity of the shape, and in its having two projecting stone cornices round its interior surface, the one at a height of 4 and the other of 6 feet from the ground. The style of the workmanship was singularly perfect, and shewed an intimate acquaintance with masonic art. No cement of any description had been made use of in its construction, yet the stones were so accurately joined together, that even the difficult process of forming so diminutive a cupola by the concentration of horizontal courses was accomplished there in the most skilful and enduring manner."

NOTICES OF CONTRACTS.

For the execution of the whole Works on the Slamannan Junction of the Edinburgh and Glasgow Railway, being about a mile long.—H. G. Wright, Secretary, Railway Office, Queen-street, Glasgow. February 24.

For such Mason's and Pavior's works (stone paving only) as may be required by the Commissioners of Sewers of the City of London, for the term of three years, from the 25th of March next. Joseph Daw, Esq., Guildhall, London.—February 25.

For the supply of Granite or other hard stone for the service of the Stone's End district of the Surrey and Sussex Roads.—Road Office, Charing Cross, and W. S. Gaitskell, Esq., 21, Stamford-street, Blackfriars' Road.

For the supply of from 4,000 to 5,000 yards of Iron Railing for inside drives of Birkenhead-park.—Mr. Hornblower, architect, Hamilton-buildings, or Mr. Walker, Town-hall, Birkenhead.—February 26.

For supplying the Great Western Railway Company with such quantity of the following articles as may be required from the 1st of April, 1845, to the 31st of March, 1846; viz. Bar and Pig Iron—Castings—Bolts and Rivets—Copper (sheet and ingots)—Ironmongery, screws and nails—Brass and Iron clasp, closet tacks and wirework—Lead and Zinc—Steel for springs—Timber—Tubes, brass, copper, iron and zinc—Patent Wheel-tire, and various other articles.—Chas. A. Saunders, Esq., Secretary, Paddington. February 27.

For taking down and rebuilding the Tower of Grendon Church.—Mr. John Baker, Churchwarden, Grendon, near Atherstone. March 1.

For building twelve Boats and Engines for the City Steam-boat Company.—Charles Hancock, 17, Earl-street, Blackfriars.

For surveying and mapping at per acre an Agricultural Parish in Bedfordshire, consisting of about 4,000 acres.—Mr. James Butler, 51, Wigmore-street, Cavendish-square. February 26.

For Surveying and Valuing the Property in Austin-ward, Humber-ward, Trinity-ward, St. Mary's-ward, Whitefriars-ward, and North-ward, all in the parishes of Holy Trinity and St. Mary, Kingston-upon-Hull.—John Moxon, Clerk to the Governor and Guardians of the Poor, Workhouse, Hull. March 1.

For the erection of a Station House and Strong Rooms for the use of the Staffordshire Constabulary Police Force at the Town of Wolverhampton.—James Smith, County Surveyor, Stafford. March 1.

For a survey of the Messuages, Lands, and Hereditaments liable to poor rates, in the parish of Tydd St. Mary, Lincolnshire; together with a plan thereof, upon a scale of three chains to an inch, a tracing of such plan, and a book of reference in duplicate. The parish contains from 4,000 to 5,000 acres.—Mr. Edward Key, Clerk of the Union, Holbeach. March 3.

For the furnishing, delivering, and fixing a Steam-engine, with boilers, pumps, &c., at the Water-works, Green-lane, West Derby, Lancashire.—Edward G. Deane, Clerk to the Paving Commissioners, No. 1, Parish offices, Fenwick-street, Liverpool. March 4.

For the Mason's and Pavior's Works, supply of Guernsey Granite Chippings and Yorkshire Paving, for one Year, from the 25th of March next, for the parish of St. George, Hanover-square. Mr. R. Lees, Clerk to the Paving Committee. March 4.

For the supply of 20,000 tons of Iron Rails, and 7,000 tons of Iron Chairs, for the Newcastle and Berwick Railway.—George Hudson, Esq., Railway Office, York, and at 24, Great George-street, Westminster. March 4.

For the supply of 100,000 Railway Sleepers for the Newcastle and Berwick Railway.—George Hudson, Esq., Railway Office, York. March 4.

For a supply of thirty iron Lamp-posts and Columns, according to pattern, each weighing at least four cwt.—Robert Oldersham, Parish Clerk, Islington. March 5.

For completing the Works connected with the inclosing and annexing certain Land lately purchased for the improvement of Newport Bridewell, in the Isle of Wight.—Mr. Woodham, Deputy Clerk of the Peace, Winchester. March 8.

For repairing the footway pavements, and providing and laying new curb and other stone; for repairing the carriage-way, pavements, and providing and laying new granite and other stone, during one year from Lady-day next, for the united parishes of St. Andrew, Holborn, and St. George-the-Martyr, Middlesex.—Clerk's office, 13, King's-road, Bedford-row. March 8.

For the supply of 11,000 feet of nine-inch cast-iron Pipes for a new line of Aqueduct to be laid in the Island of Malta.—Vin. Casolani, Collector of Land Revenue, Office of Land Revenue and Public Works, Valletta, Malta. March 31.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

February 25.—At the King's Arms Inn, Hemel Hempstead; a large Fall of capital Oak, Ash, Elm, and Beech Timber Trees, the greater portion of which are of very large dimensions and superior quality.—Mr. James Adams, auctioneer, Clarence-street, Staines, Middlesex.

February 25.—At Elmer Farm, Beckenham, near Sydenham, Kent; 145 Elm Trees of large dimensions and prime quality.—Mr. Warren, land and timber surveyor, Isleworth.

February 26.—On the Estate of the Earl of Denby, at Monk's Kirby; 70 Lots of very superior Ash Poles, a few Fir Poles, 74 Lots of very straight Larch Poles of good size, 24 very large Ash Poles, 300 Beech Trees, a few Fir and other Timber Trees.—Mr. T. Nixon, auctioneer, Claybrook.

February 27.—At the Coach and Horses Inn, Nazing, about two miles from Waltham Abbey, and four from Epping; 300 Oak, 150 Elm, and 50 Ash Trees of good dimensions and clear growth.—R. B. Andrews, Esq., solicitor, Epping; and Mr. R. K. Davies, auctioneer, 68, Mark-lane.

February 28.—At Garraway's Coffee-house, Cornhill; 150 logs of Cuba and African Mahogany, 67 logs of New South Wales Cedar, 1,600 planks of Bahia and Rio Rosewood, 848 Lancewood Spars.—Alexander Simson, broker, 75, Old Broad-street.

February 28.—At Trumpington, Cambridgeshire; Ash and Alder Timber Trees, Oak, Ash, Elm, and Larch Spires and Poles. The Larch Poles are very clean, and of large girth, varying in length from 20 to 50 feet; the Ash and Elm Spires are also very straight and of large dimensions.—Mr. W. Smith, gamekeeper, Trumpington; and Mr. J. Wentworth, auctioneer, Cambridge.

February 28.—At Garraway's Coffee-house, Cornhill; 300 loads Quebec Red Pine; 100 loads Yellow Pine; 100 loads of Ash; 80 loads of Oak; 10,000 Yellow Pine deals and battens; 10,000 Spruce deals and battens.—T. and J. Simson, brokers, 5, Change-alley.

March 3.—At the Greyhound, Sandy, Bedfordshire; a large fall of remarkably large Larch and excellent Scotch Spires.—Mr. J. Carrington, auctioneer; Potton and Biggleswade, Befordshire.

March 4.—At the Green Man Inn, Plashet, Essex; 220 capital Timber Trees, 200 superior Poles, of large dimensions, part nearly timber-girth, consisting of Lime, Ash, Beech, Oak, Black Poplar, Birch, and Hornbeam.—Mr. Mills, land and timber surveyor, 24, Poultry.

March 4.—In the Wood on the Deadmonsey Estate, near Market-street, Herts: 1,100 large Oaks; 3,500 smaller Oaks; 400 large Beech; 600 smaller Beech; 1,000 Oak poles. The estate is twenty-eight miles from London, and about seven miles from the Grand Junction Canal at Boxmoor.—Mr. George Hudson, Auctioneeer and Surveyor, Woolwich; or Mr. Mellor, Auctioneer, Dunstable.

March 7.—At the Hall of Commerce, Threadneedle-street: 500 loads of large Yellow Pine Timber, 20,000 Baltic and Colonial Deals.—Churchill and Sim, brokers, 75, Old Broad-street.

March 10.—A quantity of excellent Scaffolding, &c., lately used in erecting a division of Westbourne-terrace, near the Great Western Railway.—Mr. Charles Green, Auctioneer, 8, Grove-end-place, St. John's-wood-road.

March 11.—At the King's Head Inn, Enfield, Middlesex; 200 Oak Timber Trees of large dimensions and excellent quality, 34 Elm and 24 Ash Trees.—Mr. Henry Cobb, surveyor and land-agent, 18, Lincoln's-Inn Fields.

Shortly.—A valuable cargo of Mahogany and Cedar in Logs and Planks.—Mr. R. Marvin, auctioneer, 34, Queen-street, Portsea.

COMPETITIONS.

Designs and Plans are required for a Corn Exchange, to be built in the centre of the Corn Market, at Romford, Essex. Ten guineas will be given for the most approved Design, and five guineas for the next best.—Mr. Harvey George, Romford. March 1.

Plans and Elevations for a new Workhouse with the requisite offices, capable of accommodating 400 inmates, for the Canterbury Incorporation. The architect is requested to state the amount of premium he will require for the use of his plan and specifications in the event of the Court of Guardians adopting the same, and appointing their own surveyor to superintend the works.—Mr. W. M. Smithson, Clerk, Canterbury. March 8.

The Committee of the Liverpool Docks are desirous of receiving Plans for the most convenient mode of landing or embarking passengers, carriages, &c., &c., at George's Pier-head. A Premium of 200*l.* will be given for the Plan selected and acted upon, and a Premium of 100*l.* will be given for that Plan which may be deemed to be the next in utility.—Daniel Mason, Esq., secretary, Dock Offices, Revenue-buildings, Liverpool. March 19.

TO CORRESPONDENTS.

Received with thanks.—*A Proposition on the National Debt, by Luke James Hansard; Suggestions for a Collection of Studies of our National Architecture, by C. B. Lamb; Prospectus of Tardley's Pneumatic Wind Guard; Rules of East London Building Association.*

"Dr. D." *is thanked; a notice of the meeting was in type before his letter arrived.*

"Caouchouc" *has our thanks.*

"J. W. Archer."—*The addition is not advisable.*

"A.P. (Datchett)."—*Without wishing to say any thing to the prejudice of the other materials mentioned, we should give the preference to Claridge's Seyssel Asphalte.*

"Embryo Architect" *will find an answer to part of his question in another page. He can obtain a prospectus of Corrugated Iron at the Grove, Southwark.*

"J. White and Sons."—*Our remark did not apply to the cement. We have so good an opinion of Keene's Marble Cement, that we would willingly assist in drawing public attention to it.*

"H. A. (Manchester)."—*We do not see at the moment, how we can aid his purpose.*

"H. R. A."—*Does our correspondent mean an architectural, or a general cyclopædia?*

"I. I. I."—*Next week.*

"A. R. C."—*Mr. Manfred No. 36, Palace-street, Pimlico.*

Received—Joseph Ash; M. J. S. Romford; D. W. B.; Lieut. Higginson; Censor.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, February 24.—*Geographical*, 3, Waterloo-place, 8½ P.M.; *British Architects*, 16, Grosvenor-street, 8 P.M.; *Medical*, Bolt-court, Fleet-street, 8 P.M.

TUESDAY, 25.—*Medical and Chirurgical*, 53, Berners-street, 8½ P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.; *Zoological*, Hanover-square, 8½ P.M.

WEDNESDAY, 26.—*Society of Arts*, Adelphi, 8 P.M.; *Geological*, Somerset House, 8½ P.M.; *Pharmaceutical*, 17, Bloomsbury-square, 9 P.M.

THURSDAY, 27.—*Royal*, Somerset House, 8½ P.M; *Antiquaries*, Somerset House, 8 P.M.; *Royal Society of Literature*, 4, St. Martin's-place, 4 P.M.; *Medico-Botanical*, 32, Sackville-street, 8 P.M.; *Numismatic*, Somerset House, 7 P.M.

FRIDAY, 28.—*Royal Institution*, Albemarle-street, 8½ P.M.; *Philological*, 49, Pall Mall, 8 P.M.

SATURDAY, March 1.—*Asiatic*, 14, Grafton-street, 2 P.M.; *Westminster Medical*, 32, Sackville-street, 8 P.M.; *United Service Institution*, Whitehall-yard, 9 P.M. (anniversary); *Medical and Chirurgical*, 53, Berners-street, 8½ P.M. (anniversary).

ADVERTISEMENTS.

PERSONS having Second-hand Deal Frame, Saws, Tools for Matching and Planing Boards, or for Rebating or Cutting Moulding, suitable for Working with Steam Power, may hear of a Purchaser by ddressing a letter to B., at the Office of "The Builder."

HENDRY and GLOVER, IRON-FOUNDERS, beg to inform their customers that they have removed their Foundry (from Smart's-buildings) to CHARLES-STREET and 168, DRURY-LANE, where they have adopted every improvement to enable them to compete successfully in quality, price, and punctuality. They have also an extensive and well-arranged stock of patterns for every description of Castings.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

LIEUTENANT FRANCIS HIGGERSON'S Substitution of Iron for Wood, in joists, girders, all floor-supporting, well-covering, and strengthening parts of house-building, by which the remotest possibility of danger from fire is obviated, without in anywise interfering with, or altering the present methods or principles of construction. May be obtained from Messrs. Boulton, Watt, and Co., London-street, Fenchurch-street, London; and Soho, Birmingham; by application to the Inventor and Patentee, Lieutenant Higginson, Saint Margaret's Bank, Rochester, Kent. All letters pre-paid.

TO ARCHITECTS AND BUILDERS.

DOULTON AND WATTS, LAMBETH POTTERY, LONDON.—Manufacturers in TERRA COTTA of VASES, FOUNTAINS, &c., for Pleasure Grounds. FIGURES for Public Buildings, and ARCHITECTURAL WORK of all kinds.

This TERRA COTTA has all the appearance of Stone, and being subjected to a high degree of fire is imperishable; thus possessing a decided superiority over cement or artificial stone.

Stone-ware, Water-pipes for Houses, Drains, &c., Water-closet pans, with simple and perfect trap; the cheapness, efficiency, and easy adaptation of which render them desireable not only for public institutions, but for every house.

ARCHITECTS.—NOTICE is hereby given that the TRUSTEES appointed by SIR JOHN SOANE will meet at the Museum, in Lincoln's-Inn Fields, on Monday, the 24th of March, at three o'clock in the afternoon precisely, to distribute the dividends which shall have accrued during the preceding year from the sum of 5,000*l.* reduced 3 per cent. Bank Annuities invested by the late Sir John Soane, among distressed Architects, and the Widows and Children of deceased Architects left in destitute or distressed circumstances.

Forms of application may be had at the Museum, and must be filled up and delivered there on or before Saturday, the 15th of March, after which day no application can be received.

HATCHER'S BENNENDEN TILE-MACHINE, Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.

This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz:—

1 inch diameter of	Tile, 11,000	1½ inches diameter of	Tile, 5,800
1¾ " " "	8,000	2½ " " "	3,300

The Machine is moveable down the drying-sheds, so that it requires no extra boys to carry the Tiles, nor are shelves required in drying. It has been in full operation for upwards of four months at Hempstead Park, near Cranbrook, Kent. No charge made for Patent dues or licence. The purchase of the machine includes free use of it.